TEXTILE READER'S GUIDE

Classification of Contents

Fibers 831
Yarn Production 833
Fabric Production 843
Standard Finishing 853
Dyeing and Printing 858
Special Finishing 864
Testing and Measurement 867
Textile Mills 869
Chemistry and Physics of Textile Materials 874
Textile Education and Research 877
Index to Authors

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Advertising rates are available upon request.

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Small French town saw birth of first man- made fiber

Anon. *Daily News Record,* 31-48 (Feb. 21, 1952).

See front section.

Rayon and synthetic fibers

Anon. *Dyer 106,* 543, 545 (Oct. 19, 1951).

Main features of the acrylic fibers: Orlon, Acrilan, and Dynel, which have been stressed are: good bulking properties, warmth of handle, resiliency, low water take-up, and high resistance to acids. Uses include substitutes for wool, in wool blends, and in viscose staple blends. The main difficulties in processing the acrylic fibers

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appear to be associated with dyeing. These difficulties are briefly discussed.

Textile fibers from synthetic resins

Geo. M. Gantz. *American Dyestuff Reptr. 41,* P100-104 (Feb. 18, 1952).

A comparison of the chemical and physical properties of Dynel, Orlon, Acrilan and Dacron with natural and regenerated cellulose. Graphical and tabular data on these fibers are given for stress-strain relationships, crease recovery, dyeability, and the physical properties such as wet and dry strengths, modulus, elongation, elastic recovery, density and regain.

Type and properties of synthetic fibers

P. A. Koch. *Z. Textileindustrie 54,* No. 1, p. 46 (1952); *in German; Brit. Cotton Ind. Res. Assoc. 32,* 66 (Feb. 15, 1952).

A table is presented in which the more-well-known fibers are listed together with their German abbreviation; inventor's name; trade name; manufacturer and country of origin; method of spinning; principal chemical, mechanical, and physical physical properties; and a diagrammatic representation of the fiber cross-section (X170). The fibers quoted include polyvinyl chlorides, polyvinyl alcohol, various vinyl mixed polymers, polyethylene, polyethylene terephthalate, polyamides and polyurethane.

Urges ingenuity, initiative be used to advance synthetics

David B. Hardin. *America's Textile Reptr. 66,* 9-10, 16 (Feb. 28, 1952).

By using the functional properties of the various man-made fibers, in combination with each other or with the natural fibers vast opportunities are opened for producing engineered fabrics to do an engineered job. To achieve the maximum results for a specific end use, the future designer may well be a textile engineer or textile physicist. The functional and aesthetic characterists of nylon, Orlon, and Dacron are discussed together with their potential use.

X-51 Acrylic fiber

A. Cresswell. *American Dyestuff Reptr. 41,* 161-3, 179 (Mar. 17, 1952).

Papers are presented discussing American Cyanamid's acrylic fiber. Mechanical and electrical properties, dimensional stability, flammability, resistance to exposure and to attack by microorganisms, as well as scouring and finishing are discussed.

X-51 — Meet the newest synthetic fiber

Anon. *Textile World 102,* 123-5 (Mar. 1952).

See front section.

YARN PRODUCTION B

Fiber preparation B 1

Announces lapper reversing unit

Anon. *America's Textile Reptr. 66,* 160 (Feb. 14, 1952).

The Huntermatic, a new lapper reversing mecnanism announced by James Hunter Machine Co., is designed for use on batt lappers in garnetting operations and allows absolutely uniform carriage reversal, eliminating the usual trouble encountered in belt-reverse mechanisms. The new mechanism consists of a drive shaft, coupling elements, oversize multiple disc friction clutches and ball bearings, all immersed in oil and enclosed in a sealed unit.

Opening and picking requirements for a print cloth mill — three expert opinions

Anon. *Textile Age 16,* 20-3, 39-43, 45-8 (Jan. 1952); Predicts radically changed method of cleaning cotton. Paul C. Grant, Jr. *America's Textile Reptr. 66,* 11-12, 54-5 (Mar. 13, 1952).

At the recent annual meeting of the Textile Division of the American Society of Mechanical Engineers, three papers were presented in answer to questions on the layout for opening and picking in a 50,000 spindle print cloth mill and the equipment to be installed for making 60%-30s warp and 40%-40s filling. These papers are presented and include: "The Saco-Lowell System" by R. S. Curley; "The Aldrich System" by A. P. Aldrich, Jr., and "The Whitin System" by Paul C. Grant, Jr.

Portable baling machine

Anon. *Textile Recorder 69,* 112 (Dec. 1951).

For the quick and easy baling of wool, a self-contained baling machine, mounted on rubber-tired wheels so that it can be readily moved has recently been developed by the Bidex Engineering Company of Cavendish Engineering Company of Cavendish Chambers, Keighley, Yorkshire. The machine, which is built on modern engineering lines, is operated by a finger-tip control lever, a special interlocking arrangement preventing conflicting mechanisms from being engaged at the same time. To stabilize the machine during baling, two jacks are fitted as standard equipment.

Rag picking vs. picking and shredding

J. H. Senior. *Textile Age 15,* 79-80 (Nov. 1951).

See *TTD 8,* 687-8.

Wool mills urged to handle blends carefully

Staff. *Textile Industries 116,* 193 (Feb. 1952).

Suggestions for reducing or controlling fire hazards of blending and preparatory handling of wool and synthetic fibers, prepared by the Wool Bureau, Inc., are given. These include such things as: maintaining excellent housekeeping; locating equipment so that fire will have less chance of traveling from one machine to another; good maintenance and proper lubrication of machines; etc.

Carding and Combing B 2

Crimp at drawing, neps, and U-pin cradle

Staff. *Textile Industries 116,* 145, 147 (Jan. 1952).

A report is given on the fall meeting of the Eastern Carolina Division of the Southern Textile Association. Subjects discussed include: crimping at drawing, nep control, oiling cotton, U-pin cradle, and cleaning winders.

Special open gill box to print combed sliver

Staff. *Textile Industries 116,* 99, 101 (Feb. 1952).

The Vigoureux machine for printing wool and synthetic tops and blends to obtain highly accurate blends incorporates an open gill box providing for perfect pin control and parallelization of the fibers, as well as a calendering device with grooved printing rollers to print stripes of dyes on tops. The gill head is equipped with normal back and front rolls as well as gill fallers. The printing rollers print under pressure parallel stripes of dye with the dye applied to the surface of the rolls by means of a hard rubber rolled covered with a special felt stocking, which in turn is impregnated by a second rubbed roller revolving in a dye beck. An arch-shaped supporting stand is attached to the delivery and of the machine where the dyed tops are allowed to dry and from which they are conveyed over a folding device into baskets. The top is then put into an ager to allow the dye to set. Mfr.: Officina Meccanica Sant' Andrea (U. S. Representative Ernest L. Frankl Associates).

The theory of the continuous stripper

Anon. *Saco-Lowell Bull. 23,* 6-8 (Nov. 1951).

For over twenty years Saco-Lowell Continuous Strippers have been in successful operation in mills all over the world. There are, at the present time, over 19,000 Continuous Strippers in operation. However the actual operation of the Continuous Stripper and the theory behind this operation are not always fully realized.

In order to understand why a card must be ground, but why a card equipped with the Continuous Stripper does not require frequent grinding, it is necessary to examine and analyze the action of the card wire on the fibers and the effect grinding has upon the wire itself. When the card is ground the emery fillet grinds the top surface of the wire needle, leaving a number of minute serrations and creating, in effect, a series of barbs or a crown of burrs. Without a Continuous Stripper, it is necessary to grind the points of the cylinder wire to produce the barbs which create what is commonly called sharp wire. This sharpness of wire is necessary in order to prevent, as much as possible, the accumulation of fibers in the inter-wire surface of the clothing. Even with the sharpest wire, the cotton will finally build up or fill in between the cylinder wire, and eventually the accumulation becomes so great as to cause inferior carding. A cylinder in this condition is spoken of as being a loaded cylinder. The cylinder on a standard card will become loaded in from approximately 2½ to 3 hours, depending upon the amount of production and the type of stock that is being processed. The only reason why the cylinder clothing must be ground until the wire has a keen point is to prevent loading too frequently. When these barbs or burrs are worn off because of the action of the stock going through the card, the cylinder wire will begin to load up more frequently and will cause the production of inferior sliver. The reason why loading becomes more pronounced is due to the fact that the top of the wire becomes smooth, and there is not a crown of burrs to hold the fibers up to the surface of the wires.

When a Continuous Stripper is applied to a card, the conditions are completely altered. The needles of the stripper pick up the fibers which tend to slip into the inter-wire spaces of the clothing, and hold them at the surface of the clothing. The Continuous Stripper is adjusted so that the needles of the stripper will enter into the inter-wire spaces for approximately 1/16".

As the card is not stripped so frequently and because card strips contain a very high percentage of good spinnable fiber, there is a definite savings in the amount of waste produced. As an example of the reduction in waste, a card cylinder was stripped every 2½ hours before a Continuous Stripper was installed. At each stripping 5.4 ounces were removed from the clothing. When the Continuous Stripper was installed, the cylinder was stripped every 120 hours, and at this stripping only 2.4 ounces of strips were removed.

When the card clothing is first ground it forms a crown of burrs or barbs on the points of the wires. These barbs fill in between the openings of the cylinder wires, so that cotton fibers are not so likely to slip down and in around the cylinder wire, loading it up. Approximately half of the open space on the surface of the cylinder is covered by the barbs on newly ground clothing.

When the Continuous Stripper is applied to the card, the action of the needles of the stripper against the wire of the card clothing is that of a burnishing effect. The barbs left on the wire during grinding are smoothed away, but as the stripper maintains the fibers on top of the wire, the barbs are no longer necessary. It has been indicated that newly ground wire will cut a certain percentage of cotton fiber. This cutting or reduction of fiber staple length is sufficiently pronounced to show a definite significant decrease in the breaking strength of the yarn made from the sliver. Therefore, the frequent grinding of a card is not conducive to the highest quality of sliver.

There are instances in which cards have not been ground for over two years, when equipped with Continuous Strippers, and the quality of the sliver has remained at a constant high level during the entire period. We do not recommend this practice, for we feel that the card should be ground periodically in order to assure maintaining an even surface of the clothing.

Spinning B 4

Cold cleaning method developed for spinning frame spindles

Anon. *Textile Age 16*, 24 (Jan. 1952).

Magnus 751 is a new solvent type cleaner for cleaning spinning frame spindles. Two parts of the cleaner mixed with one part water provides a solution that will thoroughly clean spindles in 30 minutes. For faster cleaning, a Magnus Aja-

Dip cleaning machine is used in conjunction with the cleaner so as to add a mechanical cleaning action to the solvent action of the cleaner. Mfr.: Magnus Chemical Co.

Discussion on end breaks and front roll speeds in spinning

Staff. *Textile Industries 116*, 195, 197-8 (Feb. 1952).

In an analysis of data by one contributor regarding the relationship between spinning end breaks and front roll speed in 23 mills, results show that factors affecting variation in end breaks are first yarn strength, relative humidity, difference in ring and bobbin diameter, twist multiple, and finally, front roll speed.

In the opinion of another contributor, no relationship exists between front roll speed and end breakage. Normal front roll speed increases may be attempted without undue increase in end breaks if present traveler speed is not already too high, if empty bobbin diameter is in good proportion to ring size, and if modern true running spindles are used. At higher front roll speed the higher end breaks are said to be the direct cause of either increased traveler tension, spindle vibration, or both.

Gear-driven spindle on spinning machine

Anon. *Textile Bull. 78*, 72 (Feb. 1952).

See front section.

Large packages on Whitin F2 frames

Staff. *Textile Industries 116*, 199-200 (Feb. 1952).

In the opinion of one contributor, the package size and speed obtained on Whitin F2 Spinning frames by a reader are up to maximum. A 2″ ring size, 3½″ gauge, and 8-¾″ fiber bobbins tapered from 1-1/16″ at bottom to ⅞″ at the top are used. Front roll speed is 130 rpm; spindle speed is 9881; and indicated traveler speed is 5200 ft. per min. Any increase in ring size would decrease production, particularly in increasing the ring to 2½″. Unless definite advantages are gained by cutting production to obtain larger packages and less knots, the change in ring size to 2½″ would increase the overall cost.

Mills clean up with continuous cleaning.

James H. Kennedy. *Textile World 102*, 128-9, 224 (Mar. 1952).

See front section.

Nomatex double twist spindle

Robert Valton. *Industrie Text. 67*, 471-2

(1950) ; *in French.*

The principle is described of the Nomatex yarn doubling spindle whereby twice the amount of twist is inserted per revolution as compared with the normal spindle. This means that the output can be doubled, but it is additionally claimed that, in certain cases, the output may even be quintupled on account of the supply package being stationary thus permitting higher rates of withdrawal of the yarn. Larger supply packages may be used and increased quality of twisted yarn, both in regularity and tenacity, is claimed.

Ring frame can spin soft-twist yarns like mules

Anon. *Textile World 102,* 174 (Mar. 1952).

See front section.

Ring frame for wet spinning of flax and hemp

Staff. *Textile Industries 116,* 203, 205 (Feb. 1952).

A traversing ring design spinning frame that builds a pirn type of bobbin is reported to provide high spindle speeds, high efficiency, and large packages for wet spinning flax and hemp. Ring rails are of solid extruded aluminum alloy; and the rings, of the vertical bearing type for ear-shaped travelers, are made of high quality stainless steel. Nylon-reinforced plastic bobbins are used and are said to have a high impact strength and to be non-absorbent to permit them to be used for drying the yarn on the bobbins. A system for automatic lubrication of the rings lubricates both the vertical face and tops of the rings. Mfr.: Fairbairn, Lawson, Combe, Barbour Ltd.

Slubs, gouts and other yarn imperfections

Jas. Osborne. *Textile Age 15,* 10-14 (Nov. 1951).

Slubs, gouts, thick and thin places, etc. are the cause of many problems for carders, spinners, weavers, cloth room personnel, and management and are usually due to a careless operative, negligent supervision, or a machine operating in a dirty and inefficient manner. The origin of many of these yarn defects are discussed with some preventative precautions suggested.

Systematic scouring

Anon. *Saco-Lowell Bull. 23,* 25-28 (Nov. 1951).

See front section.

Two-speed driving of spinning frames

Anon. *Textile Mfr. 78,* 150 (Mar. 1952).

See front section.

USES AND APPLICATION OF FIBER AND SPINNING TESTS

Burt Johnson. National Cotton Council of America. 51 pages.

See front section.

Winding and spooling B 5

Announces new snap-on cone holder

Anon. *America's Textile Reptr. 66,* 161 (Feb. 14, 1952).

The new snap-on Universal cone holder, manufactured by Edward J. McBride Co., allows immediate switch from cones to tubes for creeling operations with no set screws or other mechanical adjustment required. The holder snaps into place firmly locking on the bowed spring spindle, yet it is free to revolve, thus facilitating tying of the transfer pigtails.

Applicator for yarn conditioning liquids

Charles F. Dulken, Helmuth C. Sonntag & George Westwater (to Dulken) USP 2,553,-815, May 22, 1951.

An apparatus adapted for use on a conventional yarn winding machine for applying a treating liquid to the unit onto or from which the material to be treated is wound, the apparatus comprising, in combination, a flat casing having a top and a bottom wall of substantially the shape of isosceles triangles, and having two side walls of substantially equal length, a pressure atomizing nozzle for the teating liquid connected with the casing at the intersection of the two side walls and discharging atomized liquid into the casing, the side of the casing opposite the nozzle having a slot opening extending substantially over the entire length of the side and being placed substantially parallel to the rotation axis of the yarn unit, for discharging the liquid atomized by the nozzle from the casing, and a plane baffle disposed within the casing with its plane at right angle to and being less wide than the distance between the top and bottom walls, connecting means between the baffle and the casing and including adjusting means for adjusting the position of the baffle between the top and bottom walls and the width of the passages.

How to get better service from twister belts

Anon. *Textile Age 16,* 70 (Jan. 1952).

Standard Atwood twisters have a single, endless, lapless belt to drive all the spindles on one deck, and these belts must meet the require-

ments of high coefficient of friction, smoothness, flexibility, and adequate resistance to stretch. Pointers for caring for twister belts to keep them in good condition, supplied by the Atwood Division of the Universal Winding Co., are given on storage, position on pulleys, tension, and cleaning.

Twister bobbin capacity

Anon. *Saco-Lowell Bull. 23,* 9-15 (Nov.1951).

A rapid method of calculating bobbin capacity has been developed by Saco-Lowell engineers. The figures are based upon cotton yarns. A large number of twister bobbins of different plies and different counts were measured and then weighed, and it was found that the average cotton twister bobbin had a density of .37 ounces of cotton per cubic inch of yarn. This figure was used in the calculations. However, it was found that a rayon twister bobbin has a density of .42 ounces of rayon per cubic inch of yarn. The calculations can be adapted to rayon by using the .42 figure in place of the .37 figure for cotton. Six tables and graphs.

Yarn controlling and tensioning mechanism

James P. Wilson. USP 2,554,286, May 22, 1951.

A yarn tensioning and controlling device comprising a post around a portion of which yarn is adapted to be passed, a pair of gripping elements mounted on the post and between which the yarn passes to be gripped thereby, spring means bearing on one of the gripping elements and urging it into engagement with the other gripping element for yieldably gripping the yarn therebeweent, the gripping element being muntoed for sliding and oscillating movement on the post, a swingably mounted tensioning member supported on the post over which the yarn is adapted to pass from the post, a resilient means urging the tensioning member to swing upwardly for exerting a tensioning pull on the yarn, and an arm mounted to swing in unison with the tensioning member and disposed for movement into engagement with the aforementioned gripping element when the tensioning member is drawn downwardly by an excessive pull on the yarn for rocking the aforementioned gripping element on the other gripping element as a fulcrum to displace the first mentioned gripping element out of engagement with the yarn.

Yarn package and method of winding

Frank S. Pollick, Jr. (to E. I. duPont de Nemours and Co.). USP 2,585, 584, Feb. 12, 1952.

A yarn package and a system for winding a yarn package to provide a transfer tail in which a narrow sleeve or ring is slipped over one end of the core and is arranged to receive the first few turns to provide the transfer tail.

Yarn processing B 6

Acetate package support prevents yarn slipping

Brit. Celanese, Ltd. Brit. P. 660,513. *Dyer 107,* 42 (Jan. 11, 1952).

A yarn support for packages undergoing liquid treatment, particularly in the saponification of cellulose acetate yarn, consists of a perforated tube, preferably of stainless steel, with a circumferential channel at each end. In forming the cake, some yarn is wound into each of the channels to provide firm anchorage of the package. The windings in the channels also form a trap to hinder the gushing out of liquid from the ends of the package along the surface of the tube. The support provides little tendency for the package to slip when decrease in yarn-denier occurs and also reduces the tendency to non-uniform saponification of different parts of the yarn.

Rapid drying of yarn spools

H. Rickenbach. Brit. P. 661,255. *Dyer 106,* 885 (Dec. 28, 1951).

A pressure-tight autoclave for the rapid drying of yarn spools has in it a hollow plate-like carrier on which are tightly screwed a number of sieve-like perforated spool tubes. The tubes, on which wet yarn spools are threaded, are closed tightly at the top by sealing members. A cock for the admission of cold compressed air, a valve for blowing off saturated exhaust air, and a valve for admitting hot air are provided. A pipe branching off from the bottom of the autoclave leads to a centrifugal blower which is connected by a pipe to an air heater. Another pipe from the heater leads to a jacket of the autoclave. The jacket is connected by a slit to the cover chamber of the convex autoclave cover which is closed below by a plate, provided with a number of nozzles. The device provides for 50% of the water in the spools to be removed mechanically by wringing and for the remainder to be expelled by hot air.

Rubber package holder

Societe de la Viscose Suisse. Brit. P. 657,530.

Dyer 106, 530 (Oct. 19, 1951).

An elastic package holder for rayon yarn finishing processes, including dyeing, consists of an elastic jacket having a large number of narrow apertures distributed evenly about the entire surface. The jacket is secured at its ends to circular holding plates by inwardly bent flanges. The lower plate is traversed by a central spindle, the lower end of which passes through an opening in the bottom of the vessel. The end is constructed in the form of a socket which has transverse openings, and the lower end connects to a pipe through which treating liquid is supplied. A bolt, in the upper part of the spindle, has a transverse pin engaging in two axial guide slots in the spindle; and it passes through a hole in the upper plate on which it is seated by a collar. A cover held by means of a nut screwed on to the upper end of the bolt is constructed as a hood projecting down over the upper end of the jacket. The yarn, which is cross wound and protected by cloths, is fitted over the jacket; and liquid is conducted under pressure through the spindle into the space between the jacket and the holding plates. The jacket is thus radially expanded to fit snugly against the inner face of the cake.

Yarn applications B 9

Treatment of textile materials.

George E. Niles (to Monsanto Chemical Co.). USP 2,586,477, Feb. 19, 1952.

Yarns are treated with an aqueous solution of a salt of copolymer of styrene and maleic anhydride, then woven into fabrics, and then treated with an aqueous solution of a heavy metal salt and dried for the purpose of imparting a permanent stiffened finish to the fabric which is free of dusting and not appreciably removed by laundering.

Treatment of textile materials

John B. Speakman & Alan Crummett (to Celanese Corp). USP 2,586,105, Feb. 19, 1952.

A process for producing a pile upon textile fabrics made from yarns spun from a mixture of wool fibers and cellulose ester staple fibers by milling the fabric while wet with an organic softening agent having a shrinking effect on the ester fibers alone to cause the fabric to contain a greater proportion of wool fibers in the surface fibers than in the fabric as a whole, removing the softening agent and then subjecting the fabric to a

raising treatment to produce a pile containing a greater proportion of wool than the fabric as a whole.

FABRIC PRODUCTION C

Yarn preparation C 1

New starch mixing plant

Anon. *Dyer 106,* 901, 907 (Dec. 28, 1951).

A new starch mixing plant, introduced by Atack-Turner, Ltd., prepares, filters, homogenizes, cools and draws the mix off to storage vats in one continuous process without coming in contact with the atmosphere and with the very minimum of hand operations. The equipment is so designed that no foreign matter is present in the final mix and skinning of the mix is also eliminated. A description of the starch mixing plant and its operation is given.

Slashing troubles enumerated.

Staff. *Textile Industries 116,* 200 (Feb. 1952).

Poor results in slashing may be caused by uneven drying, rolls not in line, yarn sheets not centered in the dryer, uneven squeeze, exhaust not removing enough moist air, insufficient tension on yarn sheet, etc. Poor weaving may be caused by size broken down by too much agitation, lumpy size, size too cold, uneven squeeze, excessive shedding, etc. Conditions which affect slasher production and weave room efficiency are given in question form.

Slashing and weaving methods for most satisfactory results

Anon. *America's Textile Reptr. 66,* 8-9, 41 (Jan. 31, 1952).

Discussions held at a recent meeting of the Georgia Operating Executives are reported in condensed form. Subjects covered at the meeting include: type of homogenized size preferred; correcting size pick-up difference; synthetic coverings; slasher run-out control; moisture control systems; multi-motor slasher drives; size formulas; and overcoming selvedge yarn stretch.

Slashing Weaving

Staff. *Textile Industries 116,* 155, 157, 159, 196-201 (Jan. 1952).

A report is given on the discussion of new practices and maintenance methods in slashing and weaving, presented at the fall meeting of the Alabama Textile Operating Executives. The following topics are included: homogenized size,

multi-motor drives, yarn wound squeeze rolls, hot air slashers, metallized take-up rolls, care of shuttles, rewound filling, and waste control.

Supplies continuous flow of warp size

Anon. *America's Textile Reptr. 66,* 52 (Mar. 13, 1952).

The Hydropulse which consists of a heat exchanger and a high pressure homogenizer, designed to work in tandem, is said to give continuous and uninterrupted size preparation with no waste of sizing material, no varying dilution, lower steam consumption, increased weaving efficiency, reduced shedding, hard size and soft warps. A feature of the unit is the complete hermetic separation between the actuating mechanism and material being processed which eliminates all chance contamination. Mfr.: Scott & Williams, Inc.

Weaving C 2

Costly weave defects may be due to faulty bobbins

Anon. *Textile Age 16,* 18-19 (Jan. 1952).

Many recurring weave defects may be caused by the bobbins used, either because of careless handling of bobbins or because of using the wrong one for the job. The more common weave troubles caused by faulty bobbins are listed, and three simple rules for eliminating these troubles are discussed. The rules include: (1) use the correct bobbin for the job; (2) order bobbins correctly; and (3) take care of your bobbins.

Dayton announces new check strap

Anon. *America's Textile Reptr. 66,* 162 (Feb. 14, 1952).

The Thoro-Check, a new check strap, is said to give greater picker and shuttle life, protection of binder and picker stick, rubberized fabric construction without elongation, checking, etc. After a year's tests in weave rooms it is reported to have outlasted other types by between 25 and 50%. Mfr.: Dayton Rubber Company.

Harness frame eye prevents damage to adjacent frames

Staff. *Textile Industries 116,* 205 (Feb. 1952).

The "Flattened Eye", a harness frame eye, is designed so that its outside diameter is less than the thickness of the "stick" with the inside of the eye round and the same size as a standard

eye. This harness frame eye is said to prevent damage to adjacent frames and to have the strength of an ordinary eye, even though it has been flattened. Mfr.: Steel Heddle Mfg. Co.

Loom beam head lock

Anon. *Textile Age 16,* 24 (Jan. 1952).

A loom beam head lock for aluminum beams, announced by Hayes Industries, Inc., consists of a single steel ring having 3 screw holes drilled to receive screws which screw into the beam head. The ring itself does not touch the beam head as a clearance is left between them. Advantages include preventing the heads from spreading apart further in winding the warp, the head can be made true, the device can be incorporated in a counter bore in the head allowing more head strength in a given space; etc.

Mill men discuss slashing and weaving

Anon. *Textile Bulletin 78,* 67-72 (Jan. 1952). See front section.

New electric stop motion

Anon. *Textile Bull. 78,* 100 (Jan. 1952). See front section.

New warp weighting motion

Anon. *Skinner's Silk & Rayon Record 26,* 187 (Feb. 1952).

Knitting C 3

Device for making short springs

Ernest Bridges. *Textile Industries 116,* 118 (Jan. 1952).

Springs of varying sizes and lengths are necessary for seamless hosiery machines, and a device for making short springs from ½" up to 6" by hand is described and illustrated in an accompanying sketch. The tool is easy to operate and saves time any money. Long springs, such as cylinder bands, are made on a lathe.

Electronic beam let-off

Staff. *Textile Industries 115,* 122, 199 (Dec. 1951).

Use of electronic beam let-off drives in the tricot knitting of nylon fabrics has improved fabric quality by maintaining proper runner lengths and constant linear speed of the warp supplied to the knitting elements. The drives electronically control warp let-off so that the zero or mean position of the tension bar remains fixed. An increase in warp tension produces a change in position of the knitting machine tension bar

which, in turn, is cinverted to an electrical impulse amplified to operate a small a-c motor geared to the beam. Operation of the motor releases the beam maintaining the proper tension. Changes in beam diameter are automatically compensated for since the drive operates as a function of tension rather than speed. Operation of the beam let-off drive is described.

New attachments for seamless nylon machines

Staff. *Textile Industries 115,* 187-8 (Jan. 1952).

Two new attachments, manufactured by Scott and Williams, Inc., for seam-free nylon hosiery machines are reported. The one attachment produces lengthened stitches in every alternate course or in every fourth course by lowering and raising the left stitch com. Thus, stretch is provided to out additional tension.

The other attachment assures perfect transfer of the welt by lifting the latches slightly away from the needle shanks as the needles are drawn down at the throat plate after taking the loops from the transfer jacks. Both attachments improve the appearance of the finished stocking.

Plastic aprons reduce seconds

Staff. *Textile Industries 115,* 113 (Dec. 1951).

Vinyl plastic mill-made aprons at the Alden Mills are placed across the machine tables at each knitting head and under the stockings being knitted on new 51 gauge, 32-section Karl Lieberknecht full-fashioned machines. The aprons prevent the work from falling on the shafts and other moving parts of the machine when the press-off is made and prior to starting a new stocking so that there is less soiled and damaged work. The aprons, equipped with snap fasteners to attach them onto the front control rod, extend over the table and are fastened to a piece of wood which is bolted under the table on the back side.

Right angle feature prevents wrinkling

Staff. *Textile Industries 115,* 187 (Dec. 1951).

The Hirner heel attachment for all sizes of the Scott & Williams Komet Links and Links machines permits the heel gore to be extended down into the foot of the sock. The knitting of extra fabric into the sole portion of the foot after the heel tends to bring the foot and leg of the sock into right angle position which is said to eliminate wrinkling across the instep when the sock is worn. Mfr.: Scott & Williams, Inc.

Tricot knitter features improved brake controls

Staff. *Textile Industries 116,* 85 (Jan. 1952).

Features of the Reiner Model RT-4 tricot knitting machine include: improved brake controls; automatic beam feed devices; automatic beam let-off transmission and warp tension adjuster; automatic cloth take-up; automatic guide bar lift with safety controls; etc. The machine is reported to provide improved quality control with particular attention given to the elimination of reduction of shade and stop marks and to the construction of special knit fabrics. Mfr.: Robert Reiner, Inc.

U-bolt reinforcement for loom pickers

Staff. *Textile Industries 115,* 178 (Dec. 1951).

Use of a simple U-bolt reinforcement on pickers is said to save 85 to 90% of broken and loose heel bolts on picker sticks. Maintenance trouble with parallel tongues and butts is also prevented. Construction details of the U-bolt assembly are shown in an accompanying sketch.

Pattern control for knitting machines

Walter Larkin (to Fidelity Machine Co., Inc.) USP 2,555,140, May 29, 1951.

The combination in a circular rib knitting machine, of a needle cylinder, a needle dial, needles in the cylinder and dial respectively, a cylindrical carrier above the dial, a plurality of thread-manipulating fingers supported by the carrier in operative relation to the needles, and means for selectively actuating the fingers, the means comprising a selector cam support member movable in a circular path around the carrier, adjustable guide means positioned in the path of the member for adjusting the latter to selected positions axially of the carrier, mechanism for adjusting the guide means axially of the carrier, means normally operative to lock the guide means in adjusted position, and means operating in synchronism with the guide means adjusting mechanism for momentarily releasing the locking means to permit the adjustments.

Plating on straight-bar machines

Mellor Bromley & Co., Ltd. Brit. P. 643,645. *Textile Mfr. 77,* 153, (Mar. 1951.

Plated fabric in which the plating extends only for a portion of the fabric width is produced in the method provided. A main carrier and plating carrier are traversed together for the width of the plating, and the main carrier and plating carrier are traversed together for the width of the plating, and the main carrier is traversed beyond the plating carrier for the unplated width of the fabric. The plating angle

between the two yarns is provided by locating the carriers at different levels measured in the direction of the length of the needle stems.

Pneumatic hosiery turner

Staff. *Textile Industries 115*, 143, 145 (May 1951).

At Unique Knitting Co., a pneumatic hosiery turner, designed to aid in inspection and turning operations on anklets, slacks, crew socks, etc., between looping and dyeing, has been found to conserve labor, increase production, simplify turning operation, etc.

The apparatus consists of 2 vacuum tubes, operated by one hp electric motor-powered blower. A damper mechanism controls the suction of the blower fan to each of the receiving chambers. When a dozen pairs (or any selected number of dozens) has been turned, a foot treadle is pressed to dampen the suction and a counterbalanced bottom door opens to deposit the socks onto a table or into a container. The door closes by action of the counter-balance, and a counter is actuated to record the batch leaving the machine. An attachment for inspecting the socks at the same time they are turned consists essentially of mirrors placed in a "V" arrangement underneath the vacuum tubes.

Rocking mechanism for seamless hosiery machines

Holcott Engineering Co. Brit. P. 643,520. *Textile Mfr. 77*, 153 (Mar. 1951).

An improved racking mechanism for circular seamless hosiery knitting machines is claimed which eliminates the necessity for lugs on a number of successive chain links and avoids the use of special kick-rocking mechanism.

Setting hosiery, etc.

Paramount Textile Machinery Co. Brit. P. 643,641. *Textile Mfr. 77*, 153 (Mar. 1951).

In apparatus for setting fabrics, etc. there is provided at least one aperture in a steam treating chamber, a number of groups of forms for the articles and a support for each group of forms with means common to all the supports simultaneously to carry them and movable with respect to the aperture. Means are provided for removing a selected support and its forms from the common means and inserting them within the chamber.

Straight knitting machine

Emil J. Berger & Howard K. West (to Dexdale Hosiery Mills) USP 2,554,656, May 29, 1951.

A yarn sinking instrumentality for knitting machines having the form of a flat elongate blade with an actuating butt at the rear end, and a substantially upright frontal edge with a medially-disposed shallow rounded yarn receiving throat, the portion of the frontal edge above the notch extending upwardly and forwardly at a slight inclination to the vertical, and the portion below the notch being at a true vertical.

Thread cutting in knitting machines

W. Lindstorff. Brit. P. 642,822. *Textile Mfr. 77*, 151 (Mar. 1951).

Cutter members for straight bar knitting machines are arranged in the sinker head so that they are operated by similar means to those used to operate the sinkers. Means are also provided to hold the threads both while and after they are severed.

Thread distribution in straight bar knitting machines

M. Pourchot. Brit. P. 643,264. *Textile Mfr. 77*, 152 (Mar. 1951).

A mechanism for distributing threads in straight bar machines comprises several fixed master bars longer than the needle bed and in equal numbers at the front and rear of the machine. Each front master bar serves as a guide for a sleeve carrying a thread guide and each rear master bar serves as a guide for a driving sleeve to which is given a to-and-fro motion. The driving sleeve is controlled by a driving part displaceable relatively to it and connected by 2 flexible blades to the sleeve mounted on the corresponding front master bar.

How Brookshire Knitting Mills met the vibration problem

Anon. *Textile Age 16*, 18-19 (Jan. 1952).

The constant vibration of heavy circular Jacquard and flat Robacyznski Knitting machines at Brookshire Knitting Mills, Inc. caused such trouble as needle breakage, gear slipping, soiling of merchandise by dust and dirt particles falling from ceiling below the knitting room, etc. In addition, the continual change of speed in the Jacquard machines tended to loosen certain parts and cause breakdowns as well as seconds. To solve the problem of vibration, Unisorb pads were cemented to the floor, and a quarter-inch steel plate cut to the same pad dimension was then cemented to the pad. A hole was partially drilled into the

center of the plate and the machine lowered in place with the levelling screws fitting snugly into the holes. By this arrangement the machine is prevented from slipping, levelling of the machine is allowed, the vibration is eliminated.

Knitting

Anon. *Textile Age 15*, 38-41 (Nov. 1951).

New items of knitting machinery and accessories which have been placed on the market in the last year are reviewed.

Roanoke Mills, Inc.

Anon. *Textile Age 16*, 6-17 (Jan. 1952).

Roanoke Mills, Inc., founded in 1937 is a well-equipped modern plant which manufactures knitted underwear and outerwear. A description is given of the equipment used in this mill with some of the details of the processing operations. Information is also presented on the organization of the mill and its personnel.

Special fabrics C 4

A. J. Carter. *America's Textile Reptr. 66*, 12-13 (Mar. 6, 1952).

Vinyl coated fabrics are gradually replacing leather applications in automobiles because of price and quality control, and they are now the main trim materials for truck seals and backs since they have stood up well under rugged application. Considerable work has been done to make a satisfactory vinyl convertible top material, and results indicate that vinyl coated fabrics will be used because of their good weather ageing properties, satisfactory color range and stability, satisfactory cold resistance, and easily cleaned surfaces. The deleterious effect of tree gums on the coating still offer a problem.

Uniformity of fiber sheets in non-woven fabrics

Jean Louis Falcan. *Industrie Tex. 68*, 288-90 (1951); *in French; Brit. Cotton Ind. Res. Assoc. 32*, 119 (Feb. 29, 1951).

A new mechanism is described for making the sheets of fibers used in non-woven materials more uniform. The fibers are sucked off a rotating carding roller and carried by strong suction to another roller, upon which they are deposited uniformly and of a thickness determined by the speed of this roller. From this second roller, which is a sieve, the fibers go through the binding liquid and are dried.

Abradoflex — abrasion resistance tester

M. C. Shaw. *ASTM Bull.* No. 180, 49-52 (Feb. 1952).

A wearability testing machine has been developed for asbestos textiles and other fabrics, particularly of the heavier grades. The destructive actions of abrasion, flexing and crossing are simultaneously applied to cloths under test and the resulting degradation evaluated in terms of loss in tensile strength. The abradoflex rating index derived from these determinations serves to indicate the relative wearability of the textiles so tested.

Cut burling and mending costs by studying causes of defects

Anon. *America's Textile Reptr. 66*, 9-10, 16-17 (Feb. 21, 1952).

Since the main purposes of the burling and mending department are to inspect, find, and evaluate defects and to correct them whenever possible, it should be used as an important center for quality control to eliminate defects at their source. Inspection after weaving and also during finishing mending should be used in evaluating defects. An intelligently designed pay roll plan will aid in the effectiveness of quality control, and a wage incentive plan will aid in increasing the productivity of the department. Other methods of cutting costs include providing good material handling facilities, straight flow of yardage, improved employee relations, etc.

Detective work in the mill.

Anon. *Dyer 106*, 659, 60 (Nov. 16, 1951).

The difficulty of tracing the cause of faults that may occur during processing is illustrated by a worsted cloth finishing problem. In this case several grey or light shade pick and pick cloths were rejected because of blue bars, slight in shade, appearing at varying intervals on the cloth. Causes of the defect were found in the cutting process where an improperly cleaned machine had deposited blue flock on the cloth and in the blowing process where the moisture from the steam allowed color transference from the flock to the cloth. The procedure used in discovering the causes of this defect is described.

Fabric construction and mercerization

James L. Taylor. *American Dyestuff Reptr. 41*, P173-76 (Mar. 17, 1952).

An investigation of the possible effects of fabric construction and preparation on the light and

wash fastness of vat-dyed fabrics showed that the construction of a fabric is markedly influential in the penetration and depth of shade in a standard dyeing procedure. Light - fastness and wash - fastness are characteristics of the dyestuff itself and apparently are unaffected by fabric construction or previous mercerization.

Swiss fabric

Daily News Record, page 30 (Mar. 7, 1952).

A new fireproof fabric having heat reflectance capacity of up to 95% has been developed by H. Danieli and A. E. Walter, Zurich. Called Tempex, the fabric consists of 7 layers comprising cotton fabric, several glues and aluminum foil.

Textile fabric

George Backer. USP 2,585,212, Feb. 12, 1952.

A woven fabric adapted to be used for curtains, table covers and for covering seats and cushions in cars and having a warp consisting of vinylidene chloride threads having a diameter of 0.01″ to 0.012″ and rayon threads of 900 to 1100 deniers, said warp having 8 ends as alternating groups of threads and a filling consisting of vinylidene chloride thread having a diameter of 0.01″ to 0.012″.

Treatment of textile materials

John B. Speakman & Alan Crummett (to Celanese Corp.). USP 2,586,106, Feb. 19, 1952.

A textile fabric made from yarns of a mixture of wool and cellulose acetate staple is milled while wet with an aqueous solution of acetic acid to consolidate the fabric and to increase the proportion of wool in the surface of the fabric.

Inspection and testing C 5

Carpet inspection and mending tables

Staff. *Textile Industries 115,* 186 (Dec. 1951).

Power-driven carpet inspection and mending tables manufactured by Edward J. McBride Co., place the work directly in front of the operator and eliminate the individual handling of a carpet. Time saving of 50% and saving in fatigue of the operator are reported.

Looping ladies' hosiery

Stanley Rosenberg. *Textile Industries 115,* 171, 204-5 (Dec. 1951).

To prevent menders in looping ladies' hosiery, suggestions are given for the operatives themselves, their equipment, looper tables, looping machines, installing needles, looping lines, etc.

Looping seamless nylon stockings

Staff. *Textile Industries 115,* 183, 185 (Dec. 1951).

The looping of 370-needle nylons on 38-point loopers, using a K-7 looper thread on the hook and needle, a 50-denier 7-turn nylon heel and toe yarn, and a 15-denier leg yarn, has in one mill resulted in a mender percentage average from the loopers of 1.25%. Looper knives are kept sharpened and are adjusted usually after 200 dozens are looped. Use of a cotton ravel course has saved a considerable amount of menders caused by raveled stitches in the looper course.

Mixed sizes cause trouble finishing ladies' hosiery

Staff. *Textile Industries 116,* 176-7 (Jan. 1952).

In the post-boarding department, mixed sizes and styles of hosiery can cause wasted time and money. The issuing of a large job ticket to the knitter can aid the next operator, looper, seamer, an dexaminer in keeping the correct style and size in the same bundle. Strict and good supervision is also necessary. A form that can be used is also necessary.

Marhen method for controlled vat dyeing

Staff. *Textile Industries 115,* 151 (Dec. 1951).

Continuous scientific control of the application of high quality vat dyes is now possible through the Marhen process which provides an electronic control for the reduction potentials whicfh govern the dyeing efficiency of the vat dyebath. The reducing power which is a function of chemicals and temperature is measured in terms of electrons by using suitable electrodes and measuring equipment. Advantages claimed include: uniformity and constant shade, elimination of doubt as to end results savings in chemicals, a better dye job in less time, etc. Inventors of the process are D. E. Marnon & J. H. Hennessey of the General Dyestuff Corp.

STANDARD FINISHING D

A background for heat setting nylon tricot

Anon. *Textile Age 16,* 52-8 (Jan. 1952).

A review is given of a recent paper given by Professor Geoffrey Broughton on infra-red heating and drying for various fabrics. Of the 3 methods of heat transfer: conduction, convection, and radiation, the first two require contact

between hot and cold matter for the transfer of heat to occur, while radiation only depends on infra-red rays which can proceed without any contact, if necessary even though a vacuum, from the hotter to cooler body. In addition to this advantage radiation permits a faster transfer of heat energy than with air convection ovens and radiation equipment can be readily added to existing equipment. Gas flames, infra-red lamps, strip heaters, and fiberglas covered nichrome wire heaters are mentioned as a source of infra-red radiation.

The principles on which the 3 methods of heat transfer are based are considered with the heating of nylon tricot by infra-red discussed. Descriptions are given of the Foxboro automatic control system for wet decating machines and of the Foxboro full decating machine procedure.

Baking resin prints by gas

Anon. *Dyer 106,* 623, 625 (Nov. 2, 1951).

In printing with pigmented resin emulsions, the cloth must be heated sufficiently to polymerize the resin and give the print fastness to rubbing and washing. One method of baking, in use at the English mill of Sixten & Cassey, utilizes gas-fired radiant heat equipment which is reported to have very low running costs and maintenance. The basic ingredient of the apparatus is the Spencer radiant heat unit which is described in detail.

Decating machine

Richmond Dye Works. Brit. P. 659,004. *Dyer 106,* 674 (Nov. 16, 1951).

A decating machine which is said to prevent spotting of the goods with condensation droplets comprises a perforated suction drum with a hollow axle connected by a pipe to a vacuum pump. A steam chest is positioned below the drum, and an endless blanket passes around various guide rolls and around the drum, which is driven by a belt and motor. The textile fabric passes at one guide wheel between the blanket and the padding of the drum and is held in close contact until it leaves the drum and blanket at a second guide wheel. The drum is rotated; and steam, passed into the steam chest, issues through perforations into a space provided between a lip and plate at the top of the steam chest. A graded balance between the suction force of the drum and the velocity of the steam occurs within the space so that there is a graded suction of steam into the drum.

Detergency evaluation. III

Jay C. Harris. *J. of American Oil Chemists' Society 29,* 110-13 (Mar. 1952).

Results obtained in an attempt to adjust the Tergo-O-Tometer wash method to provide soil removal data and detergent comparison results equivalent to the Launderometer wash method using four 10-minute washes are presented. A single 3-minute Tergo-o-Tometer wash and one 2-minute rinse was seen to duplicate the average soil removal values for the Launderometer method. Of 13 detergents tested over a period of time, the two test methods provided soil removal values identical within a 95% confidence limit.

Dyeing and finishing

Anon. *Textile Age 15,* 22-8, 31-7 (Nov. 1951).

A review is presented of some of the new products and processes announced by leading concerns in the past 12 months for those engaged in the various aspects of bleaching, dyeing and finishing.

Drying machine design

H. Houlker. *Dyer 106,* 881 (Decfl 28, 1951).

In a talk on the "Drying of Textile Fibers and Materials", the equipment used in textile drying is reviewed, and a discussion is given on the control of package drying.

Gas-heated finishing processes

W. F. S. Howell & W. B. Stansfield. *Dyer 106,* 609, 611, 613, 615, 617, 619-22 (Nov. 2, 1951).

In this final article on the uses of gas in the cotton industry, the opportunity for gas to boost existing processes is shown in its use in drying, hot air chambers, stenter drying, heating calender bowls, swizzing, friction finish, schrinering, embossing, crease resist finishes, permanent glazing and embossing, p.v.c. coatings, nylon setting, and steam and steam raising.

Geltman's R. I. sponging plant ranks with finest in country

Anon. *America's Textile Reptr. 66,* 23, 26-7, 31, 33, 35, 40-3 (Mar. 6, 1952).

Synthetic resins of both the thermo-setting and thermo-plastic types are finding wide application in textile finishing and are adding many desirable and unexpected characteristics to fabrics. Warwick Chemical Co. offers its Impregnole finish, a single bath treatment for water-repellent finishing. This finish is removed by laundering and dry cleaning, but can be re-ap-

plied in the same operation. Warwick's durable, water-repellent, Norane, on the other hand, suffers very little loss in water-repellent properties from laundering or dry cleaning. Other finishes and products of the Warwick Co. are briefly discussed.

Heated drums for drying

American Viscose Corp. Brit. Pa. 658,147. *Dyer 106*, 532 (Oct. 19, 1951).

Heated drums for drying fabrics and yarns are claimed. Oil is used as the heating medium for the drums and also to lubricate the bearings on which the drums are mounted.

Monopole oils

C. Griffiths. *Dyer 106*, 875-6 (Dec. 28, 1951).

The two uses of sulfated oils in the textile industry are in uses which involve their emulsification properties and in uses which depend on their plasticizing or softening properties. Monopole oils, which are sulfated to a higher degree than normal sulfated oils and yet also possess a much higher proportion of neutral oil, are not as efficient emulsifying agents as normal sulfated oils but have considerably superior softening and textile finishing properties. The monopole oils are stable to organic acids and have improved stability to hard water. They can be produced with almost any animal and vegetable oil in a very wide range, and the ratio of degree of sufation to neutral oil can be altered to suit the particular purpose to which an oil is being put.

New effects possible with substantive softener that works with anionics

Sidney M. Edelstein. *Textile Age 16*. 34-5 (Jan. 1952).

The first softeners that had affinity for cotton and rayon were cationic and were introduced about 25 years ago. Although they permitted a completely new type of hand and finish, these softeners reacted and precipitated with anionic materials used with cotton and rayon and also had to be used on the acid side. Anionic softeners having affinity for cotton and rayon were introduced about 5 years ago, but these had the disadvantages of not giving the true type of finish associated with cationic softeners and also had to be used on the alkaline side. Development of Ampitol KZA by Dexter Chemical Corp. has finally produced a softener that has high affinity for cotton and viscose and acetate rayon, is usable with anionic or cationic agents, is stable in acid and alkaline solutions, and produces a very

desirable hand on cotton and rayon. This softener can be applied directly in many dyeing operations and with many resins, salts and other substances under conditions which could not be considered heretofore and thus offers possibilities of totally new effects.

Pull thread mending machine

Anon. *Textile Age 16*, 26 (Jan. 1952).

A new pull thread mending machine, offered by Miracle Machine Co., has a solid, spring-steel tooth-shaped disc permanently fixed in true alignment. It is designed for easy operation on either finished or gray goods with the operator able to work on either side of the stocking.

Rayon and synthetic fibers

Anon. *Dyer 106*, 687, 689 (Nov. 16, 1951).

The figure of a crepe fabric is largely determined by construction, number and balance of the ends and picks, twist and waft size; but, to a limited extent dyeing and finishing can control the degree of figure. The various methods of obtaining a flat finish are discussed with their limitations. Probably the most successful method is based on the use of modified scouring machines and then dyeing in a winch.

Shrinkage and drying of tubular knitted fabrics

F. R. Redman. Brit. P. 658,728. *Dyer 106*, 675 (Nov. 16, 1951).

Commercially suitable apparatus for relaxation shrinkage and drying, especially of tubular knitted cloth, is claimed and is based on the idea of arranging a fabric in loops with basket supports provided for the loops, and subjecting the loops to the drying influence of air. The basket conveyor extends through a housing of sheet metal sections, preferably covered with heat insulating material; and motor, driven fan units for circulating heated air from nozzles in each section are associated with the sections. The fabric is fed to the conveyor by means of power-driven feed rolls at a rate sufficiently greater than the speed of the conveyor so that it will be disposed loosely in the basket loops of the conveyor. An air nozzle at the feed end and extending the full with of the conveyor blows the fabric into the loops. At the discharge end of the conveyor, the fabric is fed to a belt conveyor and to a tray. The basket conveyor may comprise roller chains at each side carrying spaced rods which support the loops, and the basket loops may be formed of suitable wire screen.

Skin-irritation tests for the textile industry

Louis C. Barail. *American Dyestuff Reptr. 41*, P136-38, 143 (Mar. 3, 1952).

A discussion of the methods used for testing fabrics, dyes, finishes, and other chemicals in the textile industry for the presence of primary skin irritants and cutaneous sensitizers. The methods are compared for accuracy, reproducibility, time required to obtain results, and cost. Over one thousand textile chemicals were tested per se or on fabrics. The methods described are: Patch Test on human subject, Patch Test on animals, Hypodermic Injection into animals, Intradermal Injection into man, and Intradermal Single-Injection into animals. The last method has been found to be the best screening method of all.

Treatment of tubular knit fabrics

Samcoe Holding Corp. Brit. P. 661,167. *Dyer 107*, 43-4 (Jan. 11, 1952).

A system for the continuous processing of 2 or more tubular knit fabrics together consists of baskets, in parallel arrangement, containing the fabrics which are passed up through stationary poteyes and then over internal spreader mechanisms, supported and driven by side rolls. The fabrics then pass around guide rolls and through squeeze rolls where they are converged to flat distended form and under longitudinal and transverse tension. They may then pass through a solution impregnation system and through other squeeze rolls in flat form under longitudinal tension. The fabrics pass under a speed control dancer roll to the first inlet roll of a dryer. When fabric strips are of different characteristics, particularly different rates of shrinkage, the adjustment of the rates of feed is attained by variation of the amount of material fed by the spreaders which may be adjustable in width.

Wool setting processes

T. H. Sedgwick. *Dyer 106*, 591-4 (Nov. 2, 1951).

The properties of wool which have a bearing on the setting process are considered with the theories of Speakman and Astbury and Woods discussed. The procedures and machinery used in crabbing and potting, two processes which impart permanent set to wool, are also described.

DYEING AND PRINTING E

Adjustment of printing rollers

J. Dungler. Brit. P. 661,854. *Dyer 107*, 41 (Jan. 11, 1952).

A method of mounting the engraved cylinder in a printing machine to allow easy adjustment of the contact width between the printing cylinder and corresponding pressure cylinder, or the central pressure cylinder in a multicolor rotary printing machine, is claimed. The engraved cylinder is locked between two cones, the large bases of which are extended by stub shafts mounted by bearings in supports which can be moved parallel to the axis of the pressure cylinder by sliding along a cross member. The stub shaft is driven by a chain wheel, gear, or an individual electric motor. To lock the engraving cylinder, one support is moved in the direction of the other support by a screw-threaded rod operated by a handwheel.

Chrome process

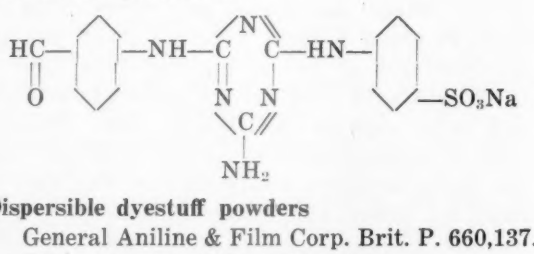
General Aniline Film Corp., H. W. Grimmel. & L. Richter. Brit. P. 661,819. *Dyer 107*. 44 (Jan. 11, 1952).

Azo compounds, prepared by reacting diazotized 6-nitro-2-aminophenol-4-sulfonic acid with 1-H-o-phthaloylamido-7-hydroxy-naphthalene, are claimed to dissolve easily in water and yield, when dyed on wool by the direct method, a black dye which by after-chroming turns to an olive-black which does not stain acetate fiber effects. When the dye is applied by the metachrome process, a bright green shade having excellent fastness to light, crocking and filling is obtained.

Chromiferous azo dyestuffs

Ciba, Ltd. Brit. P. 661.912. *Dyer 107*. 44 (Jan. 11, 1952).

Water-soluble aldehydes having an affinity for wool for use with complex chromium compounds of ortho-oxy-ortho-amino-monoazo dyes capable of dyeing in acid medium are described in this invention. The addition of these aldehydes to the dyebath is said to avoid the dull colors sometimes obtained with these dyes. The example given of a suitable aldehyde for this purpose has the following formula:



Dispersible dyestuff powders

General Aniline & Film Corp. Brit. P. 660,137. *Dyer 106*, 884-5 (Dec. 28, 1951).

A method of producing powders which contain water-insoluble dye and which are readily dispersible in water to yield a stable colloidal dispersion of the dye is claimed. The method comprises kneading the dye with secondary licorice extract and with sufficient water to yield a stiff paste, so that the kneading operation subjects the dye particles to powerful shearing action. The resulting mixture is then converted to a dry powder by heating to remove the water.

Dope-dyed viscose staple discussed

C. Howden. *Textile Age 16*, 38 (Jan. 1952).

Spun dyed viscose staple, as discussed before a meeting of the Textile Society of Canada, can be processed as easily as undyed viscose and has a high degree of fastness to light and washing. Its potentialities in blends with wool are discussed.

Dyeing p.v.c textiles

Anon. *Dyer 106*, 545, 547-9 (Oct. 19, 1951).

In the dyeing and finishing of the pure polyvinyl chloride fibers made in France, two groups are considered: (1) the thermally stabilized fibers, sold under the trade-mark Thermovyl; and (2) the fibers not thermally stabilized, including those sold under the trade-mark Fibrovyl and the continuous filament Rhovyl. To preserve the dimensional characteristics of the second group, methods of treatment must be chosen where the temperature is kept under that at which shrinkage will occur. The dyeing of polyvinyl chloride textiles is discussed under the following headings: preparation for dyeing of fibers of the Thermovyl and Fibrovyl type: dyeing fibers and fabrics of the Thermovyl type; dyeing of yarns, fibers and fabrics of the Fibrovyl type; and dyeing blended yarns or fabrics.

Fixation of acetate prints without steaming

Sandoz Ltd. Brit. P. 661,800. *Dyer 107*, 43 (Jan. 11, 1952).

A process for dyeing and printing cellulose acetate with water soluble acid dyes used as additions to the padding bath or printing paste at least one salt of thioiyanic acid; urea thiourea or guanidine as a swelling agent; a volative aliphatic carboxylic acid, preferably formic or acetic acid; and an aliphatic hydroxylated compound, such as glycols, polygloycols, their ethers containing at least one free hydroxy group, or thiodiglycols. Fixation of the dyes is by a simple drying of the material at a temperature of 40-50°C.

Pigment binders

Monsanto Chemical Co., D. H. Powers, and E. H. Rossin. *Dyer 106*, 673-4 (Nov. 16, 1951). Brit. Po. 659,078.

A pigment printing process, which is said to be resistant to crocking and washing, consists of treating the fabric with a suspension containing a mixture of pigment and an aqueous solution or dispersion of an ammonium or amine salt of a copolymer of styrene and maleic anhydride. The fabric is then heated for a short period, usually 10 to 15 min., to dry it and to insolubilize the salt of the copolymer. A very permanent effect may be produced by adding a small amount, such as 10-20% on the weight of the employer, of formaldehyde, paraformaldehyde, or trioxane to the suspension. Various aldehyde resins in small amount may also be used. Permanency may also be increased by after-treating the fabric with a dilute aqueous solution of a heavy metal salt, such as chloride, acetate, or formate of copper, aluminum, calcium, or zirconium. The concentration of the salt of the copolymer should be such as to deposit from 1 to 15% solids on the fabric, depending on the shade desired.

Pigment dyeing

Interchemical Corp. & L. P. Hill. Brit. P. 661,085. *Dyer 106*, 886 (Dec. 28, 1951).

A dyebath for pigment dyeing comprises an emulsion of a water-immiscible pigmented lacquer distributed in a continuous aqueous phase with a binder of a thermo-hardening synthetic resin, not over 2.5% of the total dye bath, but present in at least twice the volume of the pigment. The preferred resin is of the type obtained by condensing formaldehyde with carbamides, which may be set by heating the fabric from 95 to 150° C for 1 to 5 minutes. The solvent used must have a vapor pressure of no more than 28 mm. at 25° C. The fabric is treated by immersion with the amount of liquid retained regulated by squeeze rollers.

Printing acetate with vat dyes

G. D. Sutton. *Dyer 107*, 67 (Jan. 11, 1952).

Since thiourea dioxide is stable under acid conditions, use has been made of this compound in preparing printing pastes containing acid leuco compounds of vat dyes for the printing of cellulose acetate rayon with very good re-

sults. A discussion is given on the printing of cellulose acetate with vat dyes, with and without swelling agents.

Printing with acetate dyes

W. Shaw. *Dyer 107,* 61, 63 (Jan. 11, 1952).

Water-soluble acetate dyes are little used in printing except for specialized applications, such as the printing of pile fabrics. The disperse acetate dyes are preferred for general printing because of their greater ease of application and lower sensitivity to steaming. In this discussion of the use of acetate dyes in printing acetate rayon, the preparation of printing pastes containing disperse dyes and water-soluble dyes; steaming conditions and discharge printing are discussed.

Rayon & Synthetic fibers

Anon. *Dyer 107,* 59, 61 (Jan. 11, 1951).

The form of dyeing used is usually associated with the source or method of manufacture of the fiber, the purpose for which the fiber is required, and the dyeing at present is on fibers in loose state, or in hank, cake, cop or cheese, beam or chain form, or in the piece. The main advantage of piece dyeing is that shades can be decided after the fabric is woven, but in many instances yarn dyeing must be used to obtain sufficient penetration and an effective finish. Generally, the trend in dyeing is said to be towards greater use of dope dyed yarn, carrier dyeing methods, high temperature dyeing, and continuous forms of piece dyeing.

Recent advances in coloring

G. S. J. White. *Dyer 107,* 34-5 (Jan. 11, 1952).

A brief review is given of some of the outstanding developments in recent years in dyes and dyeing.

Redox potential recorder for the Marhen process of vat dyeing

Anon. *Textile Industries 116,* 211, 213 (Feb. 1952).

The EMF Foxboro Dynalog is calibrated directly in millivolts of reducing potential and is reported ideal for the Marhen vat dyeing process which is based on measuring the reducing potential of the cyebath. The instrument is directly connected to a platinum electrode which measures the potential with respect to a calomel reference electrode. The most commonly used assemblies for supporting the electrodes are the

immersion type and the flow type, depending on the application. Spare range units are available for changing the range of millivolt readings for different types of dyeing. Advantages from use of the Dynalog include savings in chemicals and dyes, prevention of overreduction and shade changes at high cloth speeds, etc. Mfr.: The Foxboro Co.

Rodney Hunt introduces new series dye beck

Anon. *America's Textile Reptr. 66,* 15 (Feb. 28, 1952).

The new line of Series "52" dye becks of Rodney Hunt Machine Co. is said to successfully process a full range of fabrics, from heavy felt to nylon tricot with no cloth slippage or surging and with the need for wrapping reel eliminated. Two driven round reels are synchronized to carry the cloth in an even, tensionless manner, and a crank-type plaitor, located beneath the back reel, controls plaiting to desired lengths. Other features include compact, attractive design incorporating overhead drive; new door construction allowing door to slide up overhead or in flush with front partition; "film-flow water inlet for introducing even film of water across tub front; etc.

Roller printing of dynel developed

Anon. *America's Textile Reptr. 66,* 51 (Feb. 28, 1952).

According to Decora Corp. 100% dynel fabrics may be printed by roller printing by taking advantage of experience with vinyl films. Fabrics printed by the new method are said to have excellent fastness to washing and crocking, high resistance to sunlight, and to retain the soft hand of the original cloth. Exact control of temperature for curing the vinyl resin ink is an important factor so as not to harshen the fabric. A full range of colors is available, including blacks, whites, pastels, and deep shades.

Silk tensioning device for screen printers

W. P. McCormick. Brit. P. 658,353. *Dyer 106,* 676 (Nov. 1951).

A tensioning device for use in mounting silk gauze for screen printing comprises a stretching device consisting of a rigid rectangular frame formed as a unit. Members of a channel section are connected to the sides of the frame by nuts and bolts; and the opposite members can be moved towards or away from each other by adjusting the nuts. Each gripper element consists of a pair of wooden bars adapted to fit one on top

of the other, with a recess running the full length of the members. Each gripper element can be slid into the channel of a member and secured with screw-threaded bolts. Each wooden bar is provided with a metal casing. An inner frame made as a rigid unit of cast alloy and carrying a wooden frame is provided.

Simultaneous and dyeing of wool both in the stock and on pieces

Wm. H. Ogden. *Textile Age*, 30-3 (Jan. 1952).

The Ogden process of simultaneous stripping and dyeing wool in one operation has been found practicable for almost all types of wool stripping and dyeing, and it enables a mill in many cases to double production. The process results in stronger stock or pieces with a better handle than in the usual procedure. Time, steam, labor, and handling costs are saved. In addition, the process uses equipment that most dyehouses are already operating and makes use of normal stripping and dyeing procedures. Descriptions of stock dyeing and piece dyeing by the Ogden process are given.

Textile embossing plates using aluminum foil

Ciba Ltd. Brit. P. 659, 766. *Dyer 107*, 42-3 (Jan. 11, 1952).

An embossing plate for obtaining effects on leather, textiles and paper comprises a rigid backing of light metal, upon which a thin imprinted foil of ductile metal, preferably aluminum, is firmly attached by means of a resin adhesive which is hardenable without giving off volatile substances in quantities sufficient to disturb sharpness of the imprint. A fiber layer containing such an adhesive may be used for attaching the foil. Suitable adhesives are alkyd resin, and hardenable phenol-formaldehyde condensation products in conjunction with a polyvinyl acetal. Foils of copper, tin, and aluminum of 0.06 — 0.- mm thickness may be used.

SPECIAL FINISHING F

Controlled anti-felt treatment

Bradford Dyers' Assoc., Ltd. Brit. P. 658,977. *Dyer 106*, 675-6 (Nov. 16, 1951).

A controlled anti-felt treatment for wool, of even more than 10% moisture regain, consists in passing the material at a predetermined rate through a chamber at room temperature and ordinary atmospheric pressure, while chlorine gas is fed in at a predetermined rate and waste gas

withdrawn. The rate at which the material passes through the chamber depends on the physical structure of the material, its total moisture content, and the length of its path through the chamber. The amount of chlorine gas used depends on the weight of the wool and its potential felting or milling shrinkage. The rate at which the chlorine is admitted to the chamber depends on the rate of the wool.

Durable shrink and crease resist

Dan River Mills, Inc. Brit. P. 661,376. *Dyer 106*, 884 (Dec. 28, 1951).

A durable, non-chlorine retenetive, shrink- and crease-resist effect may be obtained by catalyzing a colorless starch-formaldehyde-acetone copolymer with mild alkaline catalysts, applying to cellulosic fabrics, and heating. The copolymer is produced by reacting starch with formaldehyde in the presence of alkaline catalysts to form starch methylol which, in turn, is reacted or condensed with acetone methylol. The overall range of proportions for most applications is, generally, 1 part by weight of starch methylol to 1½ to 10 parts of acetone methylol, and the most desirable properties in the condensation product are obtained if a combination of strong and weak catalyst is used in the condensation reaction. Potato starch tends to give softer finishing properties, corn starch a stiffer effect, and hydroxy ethyl cellulose a flat drying finish without ironing.

Non-fraying fabric labels

Markem Machine Co. Brit. P. 658,804. *Dyer 106*, 674-5.

A machine for producing printed fabric labels, which will not fray, comprises a printing couple consisting of a platen and a printing head carried by a vertically moving element which moves it to and from the platen. Means is provided for feeding the ribbon fabric with step-by-step motion and for moving the printing head downward against the ribbon to make an imprint. A thermoplastic laden tape moves across the ribbon and a binding material is transferred from the tape to the ribbon by a heated block beneath the tape and a vertically moving presser element. The ribbon is then cut along the zones impregnated with binder by a knife and ledger blade.

Resin anti-felt treatment

Monsanto Chemical Co. Brit. P. 658,994. *Dyer 106*, 886 (Dec. 28, 1951).

A process for improving the resistance to felt-

ing and shrinkage of wool textiles consists of treatment with both a urea-aldehyde condensation product and free formaldehyde, followed by curing at 250-300° F. Urea-aldehyde and aliphatic or heterocyclic amino compound-aldehyde condensation products, or their alkylated derivatives, may be used, in an aqueous bath in the form of true or colloidal solutions, fine dispersions or as emulsions, depending on their water solubility. They may be used in anhydrous baths with diluents such as ethyl, propyl, or butyl alcohols.

Rotproofing textile materials

Brit. Rayon and Silk J. 28, 70 (1952); Brit. P. 660,434, Nov. 7, 1951.

The textile material is immersed for a few seconds at room temperature in a composition containing copper or zinc naphthenate or oleate, a hydrocarbon solvent having a boiling point below 200° C. and an oil-soluble capillary-active substance such as the sodium salt of a naphtha-sulponic acid.

Trade name chart of finishes for rayon, acetate, and synthetics

Daily News Record (Feb. 21, 1952).

See front section.

Why best results are not obtained from water repellent products

Geo. A. Slowinske. *Textile Industries 116,* 229 (Feb. 1952).

(An extract from an address before Southeastern Section, AATCC). Three main sources of trouble are often the cause of failure to obtain the best possible results from water repellents. These include: improper preparation of the fabric prior to treatment; insufficient or improper impregnation of the fabric; and the lowering of repellency by most finishing agents applied along with the water repellent agent to modify the hand of the fabric.

Wool anti-felting process

P. Alexander, C. Earland, & Wolsey Ltd. Brit. P. 659,938. *Dyer 106,* 531-2 (Oct. 19, 1951).

Excellent anti-felting effects can be obtained under mild conditions using a solution of a compound of the general formula:

$$RC\begin{matrix}//O\\ \backslash O—OM\end{matrix}$$

where B is hydrogen or an alkyl, aryl, or substituted alkyl or aryl group; and M is hydrogen or a metal, in a suitable solvent. Preferably the alkyl group contains not more than 5 carbon atoms. Examples of the compounds are performic, peracetic and perbenzoic acids. They may be used in aqueous solution with an alkali aded to make the solution neutral or alkaline to a pH of less than 11. Nitrogen bases should be avoided as neutralizing agents since they catalyse the decomposition of the per acids. The regain of the wool is preferably 14% (i.e. room regain).

TESTING AND MEASUREMENT G

Instruments and Instrumentation G 2

Diameter measurement of textile filaments in moisture-controlled atmospheres

P. Denton. *J. Sci. Instr. 29,* 55-57 (Feb. 1952).

An instrument is described for determining minute dimensional changes on a specimen enclosed in atmospheres of different but pre-determined moisture condition. Localized Fineau fringes, formed by reflexion from a pair of aluminized glass plates that correspond to the fixed and movable jaws of a normal micrometers, are used as sensitive fiducial indicators for the appropriate setting of a micrometer head. Air of standard moisture condition moves past the specimen in a glass cell which is fitted with a flat roof to transmit the light beam from the intergerometer. The instrument applies a small known force on the specimen and is especially applicable to measurements on compressible bodies. Data on the variation in diameter of cellulose monofilament with moisture conditions are presented to illustrate the performance of the instrument.

Electrical extensiometer

C. H. Klute, C. J. Penther & L. B. McKee. *ASTM Bull.* No 180, 44-49 (Feb. 1952).

An extensiometer which accurately and automatically records the elongation of the reduced section of the specimen throughout the test. It is so designed that the specimen contributes only a negligble amount of energy to the sensitive elements of the instrument. The extensiometer can be easily attached to conventional testers such as the Scott Tester. The apparatus is more accurate and involves less labor in making the test than the usual testers.

Fatigue of tire cords as a function of twist

L. Hermanne and G. Quintelier. *Textile Res. J. 22,* 95-97 (Feb. 1952).

In a brief letter to the editor the author presents data obtained by using a static load is pro-

portional to the cord size rather than the same static load for different sizes. The data proves that overtwisting lowers the fatigue life.

"Heliotest" — a new light-fastness testing method

F. Gasser and H. Zukriegel. *Melliand Textilber. 33,* 44-46 (1952); *in German.*

After giving a critical survey of light-fastness testing methods commonly in use at present, the author describes a newly developed apparatus for testing dyed textiles, etc. This apparatus consists of a heliostat drive with a system of lenses mounted on to it, which concentrate the rays of the sun, causing them to act with 25 times their normal intensity upon the goods being tests. Comparative tests with normal sunlight in the hithereto usual manner showed no significant deviations from the results obtained with this new apparatus.

High speed recording yarn tensiometer

F. Nistico, B. S. Sprague & R. W. Work. *Textile Res. J. 22,* 99-100 (Feb. 1952).

A yarn tensiometer is described which is capable of detecting and recording variations in tension occurring at a rate of the order of 100 cycles per second. Tension variations of a considerable magnitude at such frequencies have been shown to exist in yarn running on standard textile machinery.

New accessories for Instron tensile tester

Staff. *Textile Industries 116,* 206, 209 (Feb. 1952).

Full scale range of compression tests are available with the Instron tensile tester by attaching an auxiliary and easily removable crosshead to the frame below the moving crosshead. Compression type load cells have a rigidly attached load sensitive table, and the sample is compressed between the table and the moving crosshead.

Also available for use with the tester is an integrator with which the area under the lead deformation curve equivalent to the energy either absorbed or returned by the test sample is available from counter readings. Mfr.: Instron Engineering Corp.

New inertialess weighing system for Scott Testers

Anon. *Rayon and Syn. Tex. 33,* 108 (Apr. 1952).

See front section.

TEXTILE MILLS H

Avisco broadens worsted experiments

Anon. *America's Textile Reptr. 66,* 11, 13 (Mar. 6, 1952).

To broaden the work of the textile research department's worsted division, the American Viscose Corp. installs an FS-4 rover and an SS-4 spinner. The rover receives an untwisted sliver, drafts it, inserts minimum twist, and delivers it on a roving bobbin to the spinner which spins the roving into yarn. The rover and spinner can be used with a Pacific converter and Warner & Swasey pin drafter, also installed at Marcus Hook, to process yarn from tow with fewer intermediate steps.

Converting a woolen plant into modern rayon mill. Fieldcrest

Anon. *Textile Age 16,* 12-4, 17 (Feb. 1952).

See front section.

Cotton textiles: outlook better after 51's setback

Anon. Federal Reserve Bank of Richmond, Va., *Monthly Review,* 9 (Feb. 1952).

See front section.

Cut power losses due to abrasion

P. W. Peel. *Dyer 106,* 905, 907 (Dec. 28, 1951).

The proper choice and application of lubricants for power transmission systems can do much to cut power losses owing to friction. The selection of bearing materials and lubricants, the oiling of wetted surfaces, lubricating values, etc. are discussed.

Efficient, productive mills is objective of textile engineers

Thomas O. Ott, Jr. *America's Textile Reptr. 66,* 16-18, 65 (Feb. 14, 1952).

A review and forecast on textile plant construction is presented with 17 points listed to indicate the present trend in building design for the future. The modern plant of the future will have the most efficient use of materials, process flow, equipment, etc. used in the new plants of the past 6 years plus some innovations and more attention given to the beauty and eye appeal of its design.

Handling solvents in the textile industry

R. M. L. Russell. *Textile Age 16,* 49-51 (Jan. 1952).

Hazardous solvents are found not only in dyeing and finishing, but in most synthetic fiber production, which depends on the use of one or more

solvents. These solvents are hazardous not only because of their combustibility; but even more because they vaporize under conditions of usage, and these vapors accumulate to produce explosions. Explosions from solvent vapors have occurred under conditions of confinement, as in basements or below ground areas, with the result that heavy structures have totally collapsed.

In designing housing for solvents, adequate explosion relief venting facilities must be provided with either adequate detachment or substantial explosion resisting construction in not more than three party walls to prevent an explosion communicating into an adjacent structure. The housing for solvents and venting facilities are discussed.

How Johnson & Johnson keeps fire losses at a minimum with an employee training program

Anon. *Textile Age 16,* 64-6 (Jan. 1952).

Fire protection at Johnson & Johnson's plant starts with 98% of the plant equipped with ceiling water sprinklers, and this system is complemented by soda acid extinguishers. Carbon dioxide extinguishing systems are installed for the cotton drying oven and also in the top level executive offices. A 500-gallon pumper of the trailer type which can be hauled to any desired location is also provided. In addition to a regular fire brigade of 38 men who are on 24-hour call, the plant has established a fire safety training program for all plant personnel. Two full-time firemen spend ose day a week making a weekly inspection of the plant, and a full-time roving patrol make a complete inspection of the property every hour-and-a-half. The protection afforded the plant has resulted in no serious fires in the last 5 years.

Less stock damage with new opener room fire protection system

Anon. *Textile Industries 116,* 99 (Feb. 1952).

The Grinnell Opener Room Fire Protection systems, is manually operated fine-spray system which is said to prevent flame spread and practically eliminate stock damage from fire in opened cotton. "Protecto Spray" heads attached to piping suspended below the ceiling are connected to a water supply through a quick-acting valve with one or more remote control stations, strategically located in the room. Operation of the system depends on an alert attendant being present at all times when the openers are in operation. Unnecessary water damage is avoided by a self-closing valve that is provided at each control station. Mfr.: Grinnell Co., Inc.

Lubrication of textile machinery. Part III

Bruce M. Dunham. *Textile Age 15,* 16-18, 21 (Nov. 1951).

In this final article on textile machinery lubrication, the difficulty of proper lubrication of looms due to the variety of mechanical motions, etc. is discussed with emphasis placed on the selection of proper lubricants and their proper application. A summary is also given of steps which may be used in eliminating or reducing current major difficulties experienced in the lubrication of textile machinery.

Modern production methods

Staff. *Textile Industries 116,* 105-43, 145, 147, 149, 151-2, 155, 157, 159, 161, 163, 165, 167, 169-70, 173, 175, 177, 179, 180A, 181, 183, 185, 187 (Feb. 1952).

Concise case histories of equipment performance and cost cutting schemes of various textile mills are presented. These reports tell the methods by which mills save labor, reduce waste, simplify jobs, improve quality, and increase production. A convenient listing of equipment performance reports appearing in "Textile Industries" during 1951 is also given.

The case history reports are as follows: New Opener Line Improves Yarn Quality and Strength; Throwing Plant Uses Power Tool for Maintenance; Reduced Costs in Wool Manufacture Credited to New Clutches; Loop Ager Triples Production of Printed Fabrics; Eye-Aid Proves Valuable in Full-Fashioned Knitting; Model E Loom Drive Saves Time, Less Maintenance Required; Better Warps with Homogenized Size; Bearings Converted to Anti-Friction Type Promote Cleanliness; Control Charts an Aid to Quality; Improved Water Supply for Roanoke Dyehouse saves $25,000 annually; Tandem Creel Arrangement Reduces Warping Costs; Evenness Tester Aids Quality Control Program in Synthetics Plant; American Thread Co's Fork Trucks Conserve Labor, Storage Space; Mechanical Cleaner and Greaser for New Era Spindles; 40% More Drying Capacity for Knit Underwear Plant; Improvised Twister in Wool Mill Operates at 92% Efficiency; Package Dyeing Cycle Controlled Automatically at Crown; Electrostatic Air Filters Improve Quality of Yarn; Improved Beamer Brake Eliminates Safety Hazard Baths; Narrow Fabrics Deposited Directly into Storage Bins; Lift Truck Handles Sheeting Rolls; V-Belt Drives

on shoe Lace Braiders Cut Maintenance; Fluorescent Cloth Inspection Lights Save Mill $1500 Annually; New Outerwear Knitting Machines Increase Production 30%; Anti-static Agent Tames Yarn in Quill Winding; Fluid Drive Minimizes Maintenance on Dresser Reel; New Type of Noil Collector Improves Wamsutta's Combing Operation; Battery Cart Eliminates Lifting; Central Lubrication Saves $1300 Per Twister Per Year; Solit Web Doubles Card Production; System Effects in Handling Slasher Condensate Drainage; Life of Back Greys Extended by Thorough Cleaning Operation; Thread Guide Aids Quality Control, Saves Time in Tricot Production; Loom Cleaning Costs Reduced; Uniformity of Rayon Blends Improves with Fiber Meter Installation; Manufacturer Saves $500 Per Week by Using 20″ Band Saw; Operations Speeded When Inspector Dictates to Burler; Magnetic Tramp Metal Separator on Waste Machine Reduces Fire Hazard; Skein Reelers Lower Operating Costs; New Machine Speeds Up Rayon Warping; Low Steam Consumption in Finish Boarding at Dexdale; Electric-Powered Drawbridge Speeds Material Handling Between Buildings Separated by Railroad Tracks; Revamped Opening and Picking Improves Product and Promotes Cleanliness; Instrument Records Six Roll-Surface Temperatures on Single Chart; Safe and Strong Hose Clamps Made with Special Tool; Bi-Coil Drawing Frames Save Space; Fans Reduce Stops Caused by Lint on Body Knitters; Steam Traps Assure Even Temperature in Slasher Cylinders; Adequate Hand Tools Save Time; Electric Machine Flash-Cures Resin Treated Fabrics; Automatic Tacker for Wool Finishing Saves Labor, Increases Production; Standard Width Beams Used on Narrow Fabric Looms; Positive Drive on Dry Cans Assures Low Operating Costs; Fork Trucks Cut Handling Time 75%; Faster Hosiery Handling, Fewer Snags with Protective Trays; High Draft and Even Yarn with Converted Spinning; Fulling Mill Drives End Cloth Damage; New Slasher Drives Improve Production and Quality; Conveyors Save Manpower and Space, Speed Up Towel Shipments; Prevents Bleeding of Naphthol Prints; Humidifier System Increases Wool Weave Room Efficiency 10%; Electronic Pick Counter Saves Time; Knit Goods Stabilizing Machines Simplify Quality Control; Inspection speed for Wide Goods Doubled with Tandem Machines; Camshaft Lock Saves Time on Tricot Machine Adjustment; Stronger Union of Lay End Plate and Picker Stick Guide; More Uniform Sliver

from Cards with Improved Coiling Mechanism; Moisture Control Speeds Finishing 150% Cushion Type Drawing Top Rolls Reduce Sliver Irregularities 50%; Floor Maintenance Cost Reduced by Alternating Machine Accessories; Uniform Setting of Nylon Fabrics with Hot Air Type Machine; Cut-Off Valve Decreases Bad Starts at Slashing Operation; Tubular Type Pumps Handle Variety of Fluids in Wet Processing Plant; Better Cotton Cleaning by Air; One New Rope Washer Replaces Six Old Soaping Machines; Aluminum Parts Help Increase Production; Waddle Recorder on Knit Goods Finishing Machine Lowers Costs, Reduces Rejects.

Modern shipping cartons source of large savings

Anon. *America's Textile Reptr. 66*, 13-14, 56 (Mar. 13, 1052).

The modernization of shipping cartons through the application of different materials secured with steel strappings has increased savings, improved handling and storage, and decreased damaged goods in four New England mills. Examples of modernized shipping cartons, which are described, include: special telescopic cartons, compressed by air, and strapped with tensional steel strapping for wool tops as well as piece goods; corrugated wrappers with steel strappings for broadloom warp beams; and medium size fiber-board cartons bound with steel straps for packaging yarns.

New products review

Anon. *Textile Age 15*, 8-9, 42-77 (Nov. 1951).

A review of the new products, processes, machinery and attachments, and improvements published in this magazine in the past year, plus several important additions, is presented.

Quantity not quality is aim of Europe's mills

John F. Bogdan. *America's Textile Reptr. 66*, 115, 117, 119 (Feb. 14, 1952).

In a talk before the Northern North Carolina-Virginia Division, Southern Textile Association, observations made during a recent trip to Europe are discussed. Subjects discussed include the types of machinery in use, machinery maintenance, testing laboratories, etc.

Rubber door bends when hit by trucks

Anon. *Textile World 102*, 182 (Mar. 1952).

See front section.

Southern construction apace

Anon. *America's Textile Reptr. 66*, 15-16, 49,

51 (Mar. 13, 1952).

Descriptions are given of the new textile mills and the modernization of other textile mills in the South completed by C. M. Guest & Sons in 1951.

U.S. taxpayers take a $7 million beating in buying Egypt's fiber

John Sutherland. *Wall Street J.* 1, 3 (Mar. 4, 1952).

See front section.

Waste in ladies' hosiery mills

Staff. *Textile Industries 116,* 198-9 (Feb. 1952).

Waste in full-fashioned hosiery mills where throwing operations are not performed may be measured by keeping a record of pounds of material produced in a given period and making a check of all material classes as waste. In plants that do their own throwing, the exact amount of waste is difficult to measure, but a total of ½ of 1% should be sufficient to cover the twisting, sizing, and winding processes. The average amount of waste at knitting is said to be about 3%. At one mill re-topping all legs that have been pressed off at the machines is done to reduce waste to a minimum in knitting.

Waste must be corrected in textile power plants

T. N. Graser. *America's Textile Reptr. 66,* 23, 25, 207-9 (Feb. 14, 1952).

Due to the depression, World War II, etc., a large number of New England textile power plants have been without significant modernization programs for nearly 20 years. Conditions in some of these outmoded plants are described, and some of the things that are being done to raise their efficiency are discussed.

World wool textile industry still shaken by '51 price fluctuations

Daily News Record, Section 2, page 24 (Apr. 3, 1952).

See front section.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Antistatic treatment

C. C. Wakefield and Co. Ltd. Brit. P. 665,914.

To reduce electrostatic effects, textile fibers or yarns are treated with an aqueous dispersion comprising (a) an ester of carboxylic acid having a molecular weight not above 100 and (b) a polyglycol having a molecular weight of at least 200.

Convenient flowmeter conversions

David P. Herron. *Chemical Eng. 59,* 142-43 (Mar. 1952).

This article demonstrates the feasibility of calibrating any flowmeter with the most convenient fluid at hand (e.g. air or water) and of converting the calibration so obtained to any other fluid without loss of accuracy.

Drying of a yarn in a high-frequency electric field

A. V. Donskoy and A. A. Frumkin. *Tekstil. Prom. 9,* 43-44 (1949; *Brit. Cotton Ind. Res. Assoc. 32,* 129 (Feb. 29, 1952).

A description is given of the results of small-scale experiments on the high-frequency drying of wound yarns after dyeing. The packages are placed between horizontal condenser plates and insulated from the latter on each side of a layer of plywood. On the laboratory scale with a frequency of 3 megacycles, drying was complete in 1.5 hrs. On the semi-production scale with a frequency of 0.2-0.3 megacycles, with circulation of air preheated to 90° C., 2.5 hrs. were needed to dry 90 kg. of yarn.

Measurement of the complexity of jute

K. R. Sen. *Indian Tex. J. 61,* 290-92 (Feb. 1951).

Presents a formula $u=\frac{M-m}{m}$ as well as the supporting mathematics verifying the accuracy of this formula. This formula is used to obtain information as to the complexity of jute.

Morphology of cotton

W. Kling and H. Mahl. *Melliand Textilber. 33,* 32-37 (1952); *in German.*

The construction elements of primary wall were first exposed to enzymatic decomposition. The results are in complete conformity with those obtained by a graduated alkali treatment. The secondary wall consists of groups of fibril bundles between which are loose parts of the fiber construction. Bacterial and chemical attack is directed chiefly against these loose parts. The secondary wall is evidently shut off on the outside by a homogeneous, more stable intermediate layer.

New light on polypeptides

F. Happey. *Dyer 107*, 65, 67 (Jan. 11, 1952).

In a lecture on synthetic and natural polypeptides, the new λII theory of the structure of the protein molecule is briefly sketched.

Polymeric material for cold-drawn fibers

Gas Light & Coke Co., R. H. Griffith & J. H. G. Plant. Brit. P. 643,388. *Textile Mfr. 77*, 152 (Mar. 1951).

A process for producing a polymeric product which can be cold-drawn into fibers comprises condensing by heating between 150 and 250°C. in an inert atmosphere benzophenone dicarboxylic acid or an ester and a glycol of the series $HO(CH_2)_nOH$ and then polymerizing the product by heating to 250 to 350°C. A catalyst may be used to aid the condensation.

Resins as finishing agents

D. G. Patterson, E. B. Detwiler & T. J. Suen. *Modern Plastics 29*, 151-2, 154, 156, 158, 160, 162, 164, 270, 272, 275 (1952).

A detailed discussion of the use of urea- and melamine-formaldehyde resins in improving the quality or properties of paper, textiles and leather. The effects on wet tensiles, crease resistance, warp shrinkage are some of the data graphically produced.

Static in the textile industry.

Jos. A. Lopez and John K. Hewson. *American Dyestuff Reptr. 41*, P105-9 (Feb. 18, 1952).

Static and its control in the textile industry are discussed. The present control methods reviewed include grounding the machine, chemical anti-statics, radioactive salts, high-voltage discharge bars controlled diffuse discharge. Solutions to the problem arising on warpers, cards, tenters, etc. are presented.

Structural orientation in cellulose acetate filaments

D. R. Morey & E. V. Martin. *Textile Res. J. 21*, 607-20 (Sept. 1951).

Factors influencing structural orientation and oriented absorption of dyes in cellulose acetate filaments were studied, using methods based on x-ray reflections and on dichroism. The derivation of a method of computing the percentage orientation from the density of the 002 ring is given. A method for determining the percentage orientation using dichroic dyes is described. In evaluating the data obtained by the latter method, the x-ray data were used as standard. The dyes

examined are classified according to their ability to adsorb directionally on the cellulose acetate substrate. Dyeing conditions affecting results obtained by means of dichroism are discussed in relation to filament structure.

Textile geometry and abrasion-resistance

Stanley Backer & Seaman J. Tanenhaus. *Textile Res. J. 21*, 635-54 (Sept. 1951).

This paper examines the relationship of structural geometry to the abrasion-resistance of textile fabrics. The durability of a fabric can be significantly altered by modifying its structural design, without change in the fiber.

TEXTILE EDUCATION AND RESEARCH J

Cotton research at Shirley

Anon. *Textile Mercury & Argus 126*, 464 (March 14, 1952).

See front section.

Says industry's aim is threefold

Julius B. Goldberg. *America's Textile Reptr. 66*, 47, 49, 179, 181, 183, 185-7 (Feb. 14, 1951).

In a review of the textile research achievements in 1951, the main objectives of most research in industry is said to be to make it better, cheaper, or make something new. The review include major developments in man-made fibers, natural fibers, manufacturing methods, equipment, dyestuffs and finishes.

Says research is key to treasure room of textile markets

J. H. Dillon. *America's Textile Reptr. 66*, 107, 126-8 (Feb. 14, 1952).

In a talk before the Lowell Textile Institute Alumni on "The Work of Textile Research Institute As It Relates to the Textile Industry", fundamental and applied research is said to be the key to establishing the availability, price and superior properties for each application of the various fibers. With the development of every new fiber, finish, machine or process, new problems are introduced that must be solved by research. The natures of the problems which still face the textile research man are discussed.

The St. Hyacinthe Textile School

Anon. *Textile Age 16*, 72-3 (Jan. 1952).

The St. Hyacinthe Textile School in Quebec, founded in 1945, offers 5 different 4-year courses:

cotton manufacturing, woolen and worsted manufacturing, woolen and worsted manufacturing, knitting, textile designing, and chemistry and dyeing. Not only are the students given a sound background in theory, but practical experience with machinery and methods is also provided by well-equipped laboratories. Aims of the school include turning out technicians with sound training in textiles and the developing of new and better methods by research and close cooperation with the textile industry. A brief history of the school and description of its course are given.

To conduct research in non-woven fabrics

Anon. *America's Textile Reptr. 66,* 11 (Feb. 21, 1952).

New Proctor & Schwartz machinery designed to produce garnetted fibrous webs and cross-laid mats up to 84″ wide has been installed at the American Viscose Corp., Marcus Hook, Pa. for pilot production as well as for studying the manufacture of non-woven goods. The equipment consists of an automatic hopper feeder 60″ wide, a 2-cylinder single doffer garnett, a crosser lapper feeding to an 84″ wide floor apron, compression rolls 84″ wide, and a tight winding head.

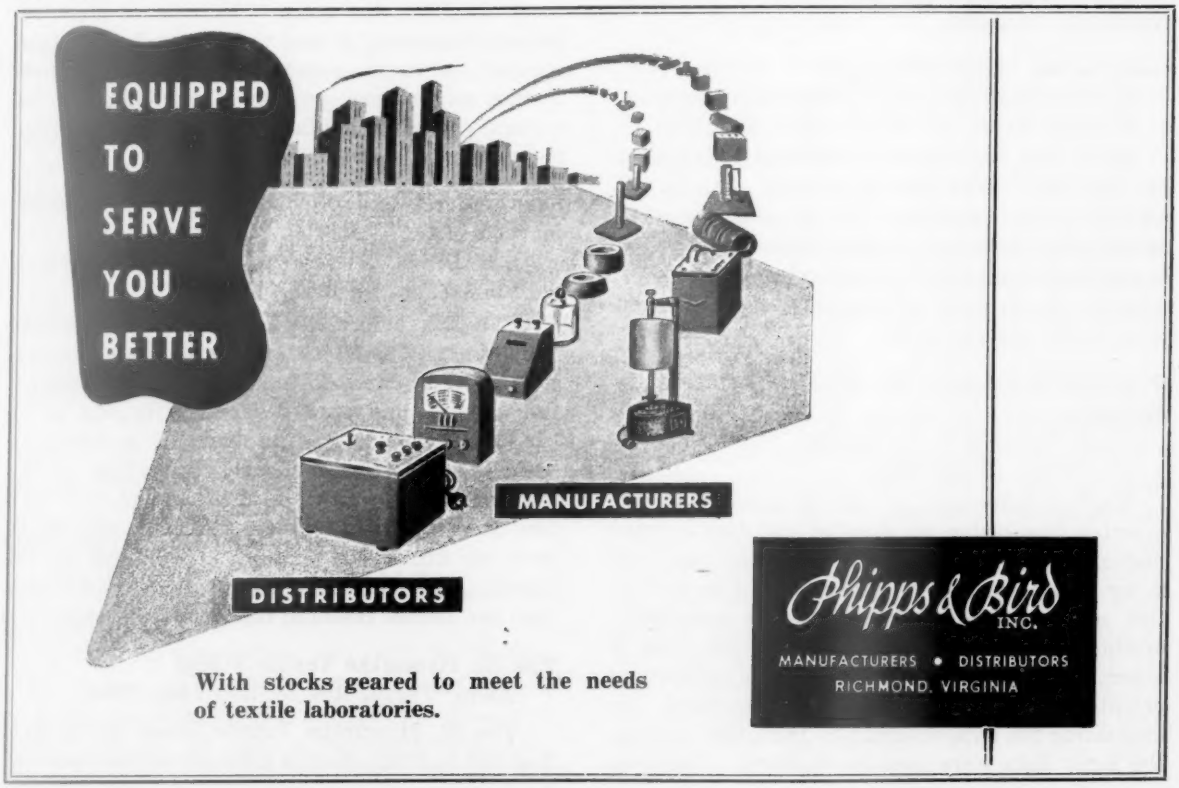
Texans learn research pays dividends

Lyle E. Hessler. *Cotton Trade J.,* 12 (Mar. 21, 1952).

Any State which produces over twenty varieties of cotton under widely different environmental conditions has many problems in cotton utilization and merchandizing. For this reason, the Cotton Research Committee of Texas established two main lines of research for cotton to overcome the many problems in cotton technology which present themselves.

A set of Cotton Processing Standards have been completed to act as a guide for all data published by the Cotton Research Committee, dealing with yarn strengths, grades and other essential information. With this, a mill may buy Texas cotton without fear of buying something they cannot use or experience fear of not being able to meet the specifications of their end product.

Cottons place in the field of textile can only be maintained by a program of vigorous research. Texas, as the largest producer of a wide variety of different types of cotton, is contributing its part toward finding specific end for its cotton. At the same time every effort is made to produce cotton of premium quality.



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SPECIAL REPORT

ITT Holds Eighth Annual Membership Meeti

Ninety-six mill members and guests attended the Eighth Annual Membership Meeting of the Institute of Textile Technology here today. The meeting was featured by an analysis of inter-industry research called the "Seventeen Mill tests," with emphasis upon the relation of processing conditions to yarn and fabric properties. The tests were sponsored by the National Cotton Council and the American Cotton Manufacturers Institute, while the analysis of data was made by the Institute Research staff.

Mr. Roger Milliken, Chairman of the Board of Trustees, reported three new members of the Institute, Smyre Manufacturing Company, Cross Cotton Mills, and Standard-Coosa-Thatcher Company, and summarized the objectives of the Institute research program as "closing in on the unknown quantities in textile manufacture so that new ways may be found to improve quality and reduce costs."

"The Institute is helping its members work with existing machinery to get the most of it," Mr. Milliken said, "and one of the outstanding achievements has been the Uniformity Analyzer, which, along with the Imperfection Counter and other electronic instruments, give the industry tools of greatest quality advantage."

Dr. J. L. Vaughan, Institute President, welcomed guests and representatives from the seventeen mills which cooperated in the tests and turned the meeting over to Dr. Jack Compton, Institute Technical Director, who acted as Chairman of the meeting, and outlined the special work of the staff in preparing the analysis of the tests.

Mr. M. Earl Heard, Vice President in Charge of Research at West Point Manufacturing Company, described the procedure used by the ACMI and the National Cotton Council in conducting the seventeen mill tests and pointed out that it was the most elaborate inter-industry test ever conducted. The principal objective of the NCC test report, Mr. Heard said, was to show the effect of various ginning conditions on yarn and fabric so that the best methods of ginning could be determined. The official report of the NCC Tests is entitled "A Study of certain cotton ginning practices as related to the spinning value of the cotton."

Mr. J. E. Dougherty, head of the Institute's Textile Engineering Division, then showed the difference between the NCC report and that made by ITT. The latter was designed to show the effects of mill processing techniques on yarn and fabric quality.

Dr. W. H. Martin of the Institute discussed the "Correlation between breaking strength and percent non-uniformity of yarns and fabric with mill processing conditions," while Dr. L. H. Hance described the "Correlation between neps in card web and imperfections in yarns with mill processing conditions."

Mr. Walter Regnery, president of Joanna Cotton Mills and Chairman of the Institute's Technical Advisory Committee then complimented the members of the research staff upon the thoroughness of the analysis, "the data of which will be a subject of intense study for many years to come," Mr. Regnery added.

Further reports were made by Mr. Leo Hubbard and Mr. T. L. W. Bailey, Jr., respectively on "Elimination of Tar Spots from Cotton Fabric" and "Member Service Performance during the Quarter."

Mr. Milliken then briefly reviewed the Institute's development of the Uniformity Analyzer, the removal of tarry spots, and the translation of the Seventeen Mill Test data into terms usable by the member mills.

A Board of Trustees meeting folowed the Membership Meeting. Eighteen trustees were present, including: T. M. Bancroft, President of Mt. Vernon-Woodberry Mills; Julian T. Hightower, President of Thomaston Mills; Walter Regnery, President of Joanna Cotton Mills; A. B. Borden, Vice President and Treasurer of Borden Mills; H. W. Whitcomb, Assistant General Manager of Fieldcrest Mills; Karl Bishopric, President of Spray Mills; A. G. Heinsohn, President of Cherokee Mills; W. S. Montgomery, President of Spartan Mills; Paul A. Redmond, Jr., Executive Vice President of Alabama Mills; Forbes Bradley, Vice President of Columbus Mfg. Co.; Marshall C. Stone, Treasurer of Pacolet Mfg. Company; C. H. Merriman, Jr., Vice President of Crompton-Shenandoah; Roger Milliken President of Deering Milliken Company; Norman Elsas, Chairman of Board at Fulton Bag & Cotton Mills.

Newly elected Trustees were: Fred L. Smyre, Jr., President, A. M. Smyre Mfg. Company and S. H. Harris, Vice President of Standard-Coosa-Thatcher Company.

The following members of the Technical Advisory Committee were present: Norman Armitage, President of Deering Milliken Research Trust; Howard Baetjer, II, Mount Vernon-Woodberry Mills; A. W. Bell, Vice President & General Manager of American Yarn and Processing Co.; L. W. Deaver, Vice President of Cherokee Textile Mills; M. Earl Heard, Vice President in Charge of Research at West Point Mfg. Co.; J. S. Kenrick, Vice President of Aberfoyle Mfg. Company; A. Marshall Moseley, Technical Superintendent at Thomaston Mills; Robert W. Philip, Vice President of Callaway Mills; A. H. Randall, Vice President of Alabama Mills, Inc.; R. C. Reinhardt, Jr., Superintendent at Valley Falls Plant of Martel Mills Corp.; J. W. Swiney, Superintendent of Bleachery at Fulton Bag and Cotton Mills; R. H. Tuttle, Director of Research and Quality Control at Fieldcrest Mills.

Newly elected member: Aubrey Hobbs, Director, Development, Quality Controls and Standards at Standard-Coosa-Thatcher Company.

Prominent members and guests included: R. L. Alford—Superintendent, Alabama Mills; D. W. Anderson—Assistant Vice President, Alice Mfg. Co.; D. R. Arrowood—Supt. Carding and Spinning, Hartsville Cotton Mill; G. J. Asensio—Manager, Clark Thread Company, Inc.; W. A. Aultman—Supt., Shuford Mills; Hewlett Bagwell—Classer and buyer, Deering Milliken Co.; George D. Baker—Superintendent, Pacolet Mfg. Co.; J. B. Baker—Manager, Pelzer Mills; Remsen Bauknight—Vice President, Alice Mfg. Co.; Welsford Bishopric—Treasurer, Spray Mills; Randolph Brandt—Treasurer, Lockwood-Dutchess; J. E. Brannock—Pilot, Shuford Mills; B. D. Browder—Vice President in Charge of Manufacturing, Dan River Mills; George S. Buck—Technical Director, National Cotton Council; E. M. Bullard—Mill Manager, Clark Thread Co., Inc.; Robert Bachman, Director of Research—Anchor-Rome; D. H. Cauble—Superintendent, A. M. Smyre Mfg. Co.; T. Max Champion, Darlington Mfg. Co.; Robert Chapman, Vice President—Inman Mills; Lynch Cine, General Supt.—Shuford Mills; David S. Cook, Vice President—Clinton Cotton Mills; W. Crome, Lab Technician — Shuford Mills; Harry DeFore, Deering Milliken Cotton Dept; J. L. Delany, Superintendent—Joanna Cotton Mills Co.; F. B. Dent, Vice President—May fair Mills; L. J. Duckett, Assistant Supt.—Fulton Bag & Cotton Mills; A. B. Emmert, Vice President—Dan River Mills; W. B. Etters, Plant Manager—Laurens Mills; L. K. Fitzgerald, Director Research & Development—Dan River Mills; W. M. Ford, Treasurer—Laurens Mills; C. N. Franks, Carding Overseer — Joanna Cotton Mills Co.; James H. Godfrey, Calhoun Mills; C. V. Garth, Vice President—Shuford Mills; W. F. Garth, Supertendent—Pacolet Mfg. Co.; J. R. Hilton, Superintendent Columbia Mills, Mt. Vernon-Woodberry; C. T. Holland, Superintendent — Pacolet Mfg. Co.; Pat Hughes, Head of Laboratory—Drayton Mills; J. M. Jackson, Superintendent—Gaffney Mfg. Co.; Dr. Burt Johnson, Cotton Technologist—National Cotton Council; H. F. Johnson, Supt. — Alabama Mills; Willis Johnson, Assistant Vice President—Mt. Vernon-Woodberry Mills; Frank Keough, Supt., Weaving—Cherokee Mills; J. L. Laughlin, Carder—Darlington Mfg. Co.; Delbert Lavender, Cotton Buyer—Alabama Mills; K. M. Lowery, Vice President—Deering Milliken Co.; J. J. Lyons, Executive Vice President—Lowenstein Mills;

W. R. McMullen, Assistant to Vice President—Borden Mills; James McMillin, Cotton Classer—Mt. Vernon-Woodberry Mills; B. B. Newlin, Laboratory Director, Judson Mills; R. B. Newton, President—Dan River Mills; J. J. Norton, Jr., Treasurer—Gaffney Mfg. Company; J. M. Oeland, Treasurer—Darlington Mfg. Co.; J. W. O'Neal, General Supt.—Pacolet Mfg. Co.; Raymond D. Owings—Assistant to Supt., Drayton Mills; G. T. Rankin, Assistant Supt.—Gaffney Mfg. Company; C. Reynolds, Vice President — Spindale Mills; J. M. Rowland, Overseer—Joanna Cotton Mills Company; Carl W. Seigler, Supt., The Abney Mills; Alex Shuford, Treasurer — Shuford Mills; W. A. L. Sibley, Treasurer — Monarch Mills; C. S. Smith, Supt.—Grantville Mills; R. W. Smith, Manager—Central Cotton Department; Roland Stoner, Pilot—Cherokee Mills; Marion Stribling, Supt.—Habersham Mills; N. W. Touchett, Textile Technician—Fulton Bag & Cotton Mills; J. K. Waits, Joanna Cotton Mills Company; Hazen Walker, Supt. of Warp Preparation—Cherokee Mills; Ed Weitzel, Shuford Mills; Whitener, Asst. Supt.—A. M. Smyre Manufacturing Co.; N. Winroth, Supt.—Darlington Mfg. L. H. Whitener, Asst. Supt.—A. M. Smyre Manufacturing Co.; N. Winroth, Supt.—Darlington Mfg. Lewis White, Plant Supt—Spindale Mills, A. C. Young, Jr., Standards Mgr.—Lydia Cotton Mills; R. L. Zackry, General Supt.—Fulton Bag & Cotton Mills.

Technical Highlights of the Mon

Textile Reader's Digest

A PRACTICAL MILL TOOL — THE ELECTROSTATIC VOLTMETER

United States Rubber Company's Textile Division has found the electrostatic voltmeter a practical aid in processing fibers into textiles and in determining the practicality of various fibers and fiber treatments for specific applications.

The electrostatic voltmeter is an instrument developed by the Institute of Textile Technology, in Charlottesville, Virginia; a new and improved model is now being produced commercially by Specialties, Inc., Skunks Missery Rd., Syosset, L. I., N. Y. When properly adjusted and placed near an object, the instrument will indicate the charge of static electricity present. It is simple to operate and is powered by a small dry cell battery which requires replacement about once every six months.

The only other maintenance required is a return to the factory every three years for calibration. The instrument indicates the intensity of the charge and its duration as measured by half-life is used as the measure rather than the length of time the charge lasts, because theoretically, the charge is never completely dissipated.

Static Troubles. As every mill man knows, static electricity can cause trouble. Charged fibers will lap around rolls, and ends will break when static intensity is great. In fact, static electricity is generated any time any dissimilar materials are rubbed together. In the mill. relatively high charges can be built up in drawing, spooling, warping, and similar processes, and the electrostatic voltmeter can be used to show the intensity and half-life of the charge.

After a little experience with the electrostatic voltmeter, men in the laboratory of U. S. Rubber Co., in Winnsboro, S. C., found they could make use of the instrument to tell them whether there was enough static electricity present at the trouble spot to be the cause. There is always some static present, but it was found that it had to reach a certain intensity before it could be classified as the cause of production troubles.

In Determining the Cause. Sometimes static has been blamed for sins of which it was not guilty. Several times in Winnsboro, the electrostatis voltmeter has proved that the cause would have to be sought elsewhere.

On the other hand, there was a time when an unusually high number of ends were breaking on a particular pattern in warping. It did not seem possible to the investigators that static could be the cause, but the voltmeter showed an extremely high charge present. The charge was so high that the fibers in the yarn repelled each other so that they separated enough to weaken the yarn and cause a break.

It was found that the trouble lay in the use of large quantities of bleached yarn in the pattern. These bleached yarns had not been treated with the finishing oils customarily used with package dyed yarn, and they were, therefore, much more susceptible to static accumulation. As soon as oils were added to the bleached yarn, the trouble disappeared.

The electrostatic voltmeter has been used to establish, within reasonable limits, the maximum static charge that can be accepted and still process satisfactorily. Also it has been used to ascertain the effect of incremental increases in percentage of relative humidity with regard to decreasing static.

Result have indicated that, beyond a certain point, increased humidity did not lead to better processing conditions and contributed only to greater discomfort to the operatives. In one instance humidity is now controlled as a function of optimum moisture for the material being processed, plus an absolute minimum of additional humidity when required to combat static.

The operatives indicated their appreciation of the efforts to give them the best possible working conditions; tangible increases have been reflected in productivity.

Textile Industries, April 1952, Page 105-106

SHIRLEY REGULATOR SEEN CONTROLLING AMOUNT OF SIZE ON WARP

The Shirley automatic size regulator, a new device for controlling the amount of size put on the warp at the slasher, has been developed by the British Cotton Industry Research Association at its headquarters in Manchester, England. It is now being made under license by Joseph Hibbert & Co., Ltd. of Darwen.

It is claimed that by means of this automatic size regulator, a warp can be sized to any desired percentage simply by setting a pointer to that percentage on a graduated dial.

Although there is, for every type of cloth, a best percentage of size for weaving, it is practically impossible, by ordinary sizing methods, to obtain this percentage consistently. Consequently many warps, even those produced in well organ-

ized mills, are either oversized or undersized. This lack of control has its inevitable effect in reducing weaving efficiency and cloth quality.

In order to take full advantage of the control offered by the regulator it is of course, necessary to know the best percentage of size for weaving a given warp, so that the regulator can be set to size the warp to this percentage.

The new regulator, it is stated, automatically, continuously and simultaneously detects and compensates for variations in practically all the factors at the tape frame which effect the percentage of size put on the warp.

For example, it compensates for any variability in consistency between different deliveries of starch or for the fall in the viscosity of the size due to prolonged boiling or for variations in the amount of condensation of water which takes place in the size box. But the regulator not only caters for variations in the size properties, it can just as readily cope with wide variations in the take-up properties of the warp.

Thus, the correct percentage of size is obtained on an entirely new type of warp quite as easily as on a route type. The regulator also makes allowances for any variations in the sizing conditions imposed by the machine itself such as the pressure at the nip of the squeezing rollers, the hardness of the roller covering and the speed of running.

The regulator first of all requires that a stock size mixing is prepared containing a predetermined weight per gallon of starch and tallow of whatever sizing ingredients are used. This mixing must be sufficiently concentrated so that, if it were used undiluted in the size box, it would put more than the required percentage of size on the warp.

Arrangements are then made to feed the box with this mixing so that the ingredients enter the box at the rate at which they are required to be taken up by the running warp to put on the taget percentage of size. At the same time water is automatically run into the box to dilute the size to the extent required to insure that the ingredients are, in fact, taken up at the same rate at which they are being fed to the box.

The stock size, containing a known weight of ingredients per gallon, is fed to the size box at such a rate that the weight in pounds of ingredients which enter the box during the passage through the machine of 100 pounds of warp is equal to the percentage of ingredients (i.e., size) required on the warp.

Thus, when sizing to 10 percent, 10 pounds of ingredients would be delivered to the box as a concentrated mixing during the passage of 100 pounds of warp. The water supply to the box is automatically turned on whenever the depth of size in the box falls below a specified working depth and turned off again when this working depth has been restored.

Under these conditions, it will be seen that if the concentration of the size in the box differs at any time from that required for sizing to 10 percent, then the rate at which sizing ingredients are taken out of the box by the moving warp will differ from the rate at which they are being fed to the box. Consequently, as the volume of size in the box remains practically constant, the size concentration is being continuously adjusted toward the value required, under the conditions prevailing at the time, to put the desired 10 percent of size on the warp.

If, at any time, less than 10 percent of size is being taken up by the warp, the weight of ingredients in the box builds up and the concentration of the size consequently increases until the warp is taking up its target percentage of size, Similarly, dilution takes place, if, at any time, the warp is taking up more than the target percentage. (*Daily News Record*, March 24, 1952. page 26).

COTTON RESEARCH CLINIC HEARS HOW BETTER YARN BEHAVIOR IS OBTAINED WITH HIGHER CARD SPEEDS

One of the papers presented at the 1952 Cotton Research Clinic was entitled "Putting Research to Work," by E. A. Bentley, superintendent of Swift Mfg. Company at Columbus, Georgia. By increasing carding rate by 34 per cent Swift has obtained better results in yarn breaking strength, silver variation and neps per grain, according to Mr. Bentley. He described how 98 of his plant's cards had been changed over to the higher speeds with "no apparent deterioration in cylinder, doffer fillets or flats" in comparison with remaining cards in the mill; in addition, cost of supplies for the group operating at increased speeds has stayed in line.

Mr. Bentley, in describing increased carding speeds, stated that since changes were made in the group of 98 cards last June, nine million pounds were produced. The rate of output of these machines was set 25.7 pounds per hour as compared with normal 15.7, and licker-in speed was established at 795 r.p.m. instead of the previous fiber of 517. An increase of comb box, speed from 1,360 to 1,750 r.p.m. was required, Mr. Bentley said. Ball bearing boxes replaces plain bearing types, which threw out oil when

Probably the most serious problem, it was found, was that the combs have to be "extremely accurate," from end-to-end. Milling and then grinding fingers of the comb before riveting the blade to the comb was accomplished, and there is still a variation though at a minimum, Mr. Bentley declared. Because of high doffer speeds, it was necessary to institute a special training program for card tenders in order to keep wate to a minimum after making the change, it was noted.

Mr. Bentley also explained it was imperative to have better grinding and more accurate settings than previously, especially such critical points as mote knives, licker-in screen and the screen itself. At increased speeds, he observed, the sheet of fiber was laid more evenly across the face of the fillet during a single r.p.m. than previously, when larger portions of fiber were delivered, and instead of being transferred were jerked from the licker-in by the cylinder.

Results achieved by the higher rate included: roving variation was 39.4 compared with 42 at normal speeds; breaking strength of 10s yarns averaged 173.9 against 169.5, and nep counts, from three counts of 50 square inches of card web, were 29.7 per grain as compared with 33. Carding production may be increased 40 per cent without resulting in more neps, or with the same speed and higher licker-in speed, neps will be reduced ten to 12 per cent, Mr. Bentley said. (*Textile Bulletin*, March 1952, pages 75-6.)

YOU CAN REDUCE YOUR SHUTTLE-FUR COSTS

Shuttle fur can cost a mill as much as $15 per year per loom. At this rate, fur represents a large item in loom costs.

It is customary with most mills to replace the fur at each warp-out; and often the loomfixer, for various reasons, may replace the fur between warp-outs. Replacement would run as high as 17 times per year. At present fur prices, $15 is soon spent.

A careful study of weave-room furring practices and the improvement of those practices can result in a 35 to 50% reduction in fur costs—amounting to as much as $5 to $8 per loom per year.

Whoever is responsible for specifying shuttle fur should be careful to choose the proper fur for each style of cloth. It makes the buying job easier to buy all shuttle furs of one grade; but filling requirements of all sytles of cloth are not the same, and in most mills a single grade of fur will not meet all requirements. A fur that is too light for the job it is put on demands frequent replacement, takes the loomfixer's time unnecessarily, and causes high fur costs.

On the other extreme, heavy fur may require excessive trimming. If not trimmed, heavy fur can cause stretched filling, broken picks, and other defects. Again, money is wasted on fur costs.

In general, fur that is too heavy for a filling will cause more trouble in a piece of cloth than fur that is too light. In general also, a light, less expensive fur requires less trimming and results in less fur waste than a heavy fur.

Experiments with different weights or grades of fur should be made on standard styles of cloth. These experiments, under normal production conditions, may result in the satisfactory use of lighter, cheaper furs.

In each weave room, someone should know fur grades and weights and how the grades may be applied to different loom speeds, counts and twists of filling, and general loom conditions.

On bobbin-changing looms, it is often advisable to turn the lay of the fur hair against the pull of the filling. Placing the fur this way increases the friction on the filling. Another advantage in reversing the fur is that the tension may be reduced on the shuttle eye. Lighter furs may sometimes be used if the fur is reversed in the shuttle.

Fur is affected by the humidity of the weave room. When dry fur is put in a shuttle in a wet weave room, it will become heavier in diameter within 2 or 3 hours.

A knowledge of fur and fur application is necessary if furs are to be bought economically. Furs should not be bought too far in advance because:

1. *Cloth constructions being women may change and different furs may be needed.*
2. *Age dries out the natural fur oils.*
3. *Furs return to their natural wooly base when they are not used.*

The first requirement in thrifty fur buying is the selection of the proper width of fur. The groove cut in the shuttle determines the width of fur to be used. For instance, a groove that is 5/16 in. wide requires a fur 7/8 in. wide. A snug fit of the fur to the shuttle is ideal, since a close-fitted fur will leave no open edges to hang the filling.

Furs are usually sold in rolls in widths ¼ to 1 ⅛ in. or wider. However, many mills buy whole pelts and slit them to their own specifications. Slitting the pelts and grading the fur is an ex-

The thickness of the pelt (hide) is important. A pelt that is too thick requires valuable space in the shuttle that should be used for the filling package. (Richard B. Pressley. *Textile World 102*, April 1952, pages 130-1, 244, 246, 348, 252).

B.M.T.: A NEW WAY TO STUDY WORK LOADS

Two basic factors affect the time required to do manual work. They are, the methods used and the speed of the worker. In the textile industry various procedures are used to analyze work methods and establish normal work times for jobs in the mill. Among these are the recently widely publicized systems of "predetermined times." B. M. T. or, "Basic Motion Time Study," is the latest refinement of these systems.

Developed by J. D. Woods and Gordon, Ltd., Toronto, it is being used to analyze textile operations by Henderson, Lindsay & Michaels, Inc., management consultant of Greensboro, N. C., and Greenville, S. C.

The originators and users of B. M. T. believe that it can be taught more readily and used with more satisfactory results and greater reliability than any other system of its kind.

B. M. T. makes it possible to reduce the cost of determining standards without sacrificing accuracy in the final results obtained. In fact, the quality of results should be improved through the reduction of errors in methods analysis and the spotlighting of defects in job conditions and deficiencies in machinery.

Cost reduction is obtained through the discovery of methods improvements and by more efficient use of the timestudy man's time. The timestudy engineer can obtain better results with the aid of B. M. T. in a shorter time, than he can with the use of the stop watch alone. Using a stop watch exclusively, a considerable number of studies must be taken on most operations to arrive at a conclusion as the amount of work in a particular job.

The use of B. M. T. substantially reduces the number of studies required.

It also increased the possibility of discovering methods improvements because, using B. M. T., the methods on which a standard is based, are analyzed and described in the smallest detail.

They include stipulation of the various controlling factors of manual movements, such as muscular and visual control, the amount of precision involved, weight, force, the effect of simultaneous motions.

When a job is analyzed to the extent required to describe it completely in terms of B. M. T., there is very little, if anything, that goes on in the job that the timestudy man is not forced to observe. B. M. T. teaches the observer to ask and answer such questions as:

Does the operator have to follow the movement of the hand with his eyes?

Does the operator have to place the bobbin in the box?

How much can be saved if it can be tossed into the box?

Can the amount of precision involved in threading an end through a guide be reduced by redesigning the guide?

Does the operator use, one, two or three finger movements in order to grasp the end?

The choices of method indicated in these questions may seem insignificant but, percentagewise, the difference in time allowed can be considerable. (John Henderson. *Daily News Record*, Monday, March 10, 1952, pages 35, 38.

AN ELECTROMAGNETIC DRIVE FOR A TEXTILE CARD COMB

Recognizing that the present card bomb drive was a large maintenance problem of the card, the American Engineering Corp., Atlanta, Ga., decided that a magnetic drive would be far superior to the mechanical drive. Pursuing this idea, the company constructed a model of a vibrating magnetic drive, then engaged Southern Research Institute to redesign the device and test it on an operating card.

American Engineering Corporation's model of the new drive employed a magnet which, when energized, exerted a force on the comb structure which caused it to be deflected. A spring was attached to the shaft to tune the oscillating comb structure. It was decided that the comb should vibrate at a frequency of 1800 cycles per minute, since this frequency is a sub-multiple of commercial power frequency (60 cycles per second) and also approximates the speed of mechanical drives. To accomplish this, American Engineering Corp. used an electronic frequency divider-rectifier to supply 30 pulses per second (1800 per minute) to the magnetic coil. The entire unit, including comb blade, supporting structure and spring was so adjusted that its natural frequency of vibration would permit the comb blade to travel an adequate distance at 1800 cycles per minute. The structure holding the blade was mounted in bearings at each end.

In redesigning the card comb drive, Southern Research Institute engineers decided to eliminate both the electronic frequency divider and the bearings, in order to reduce maintenance problems as much as possible.

The electronic frequency divider was eliminated by a redesign of the magnetic structure. As mentioned above, the purpose of the frequency divider was to reduce the number of pulses of commercial line voltage (rectified) from 60 to 30 per second, thus producing 30 vibrations of the comb blade per second. The magnetic structure designed by Institute engineers accomplishes this without the frequency divider, because it is designed to allow a magnetic force to be exerted on the armature in both directions of the comb blade's swing at 60 pulses per second, thereby producing 30 complete vibrations of the comb blade per second. Elimination of the original electronic frequency divider-rectifier permitted use of a long-life dry type rectifier.

The mechanical structure supporting the comb blade was redesigned so as to eliminate the need for bearings. In the new model this structure is held stationary in rigid mounts and the blade is attached to the structure by flat leaf springs. The blade can thus vibrate from a stationary support, whereas in conventional comb drives the blade and supporting structure oscillate as a unit.

The elimination of bearings at either end of the comb drive reduced the number of wearing parts, and no oiling is necessary. It was necessary to select springs which give the blade a natural vibrating frequency of 1800 cycles per minute. Since the driving magnet exerts a force at this same rate, a resonant condition is reached and large amplitudes of vibration can be attained. The comb blade travels slightly more than one inch, approximately the same distance as in conventional combs.

Three models of the new comb drive have just been constructed in the Institute's shop. One of these has been tested on an operating card and works quite satisfactorily. Further testing will be carried out shortly to establish the reliability of the new design before the sponsor begins manufacture. (Sabert Oglesby, Jr. & A. L. Thomas, Jr. *Quarterly Bull. of Southern Research Institute 5*, No. 1, 1952, pages 13-15).

LONG STAPLE FIBERS — A DEVELOPING TREND

Is the textile industry on the eve of what can amount to a fundamental change in the established acceptance of fabrics made from the synthetic fibers and blends of these with wool or other blends? There are those who have a sincere conviction that there is some kind of change afoot in favor of the longer staples.

Anticipating that the time will soon arrive when mills, new in this field, will be interested in some basic information as to the various methods of manufacturing these so called, for want of a better nomenclature "wool type" fabrics, we will herein discuss, naturally in general outline, the current practices in spinning the longer fibers, from 2.5″ to 4″, and in 2.75 and 3.00 denier, into a satisfactory and commercially acceptable yarn.

As concerns wool, whether used in the pure state, or in blend, most of the stocks used are 64's Australian or territory, and blends thereof. Sometimes a percentage of Cape Wool is used and care must be exercised in the use of this class of wool on account of its soft character and tendency to felt. It cannot therefore be used in knit goods, but only in those fabrics which are "fulled" in the finishing. These fibers are generally found to run from 2.5 to 4″; longer ones generally indicate coarser wools which, until the recent Government specifications for serges and military goods, were made out of 56's to 60's and at the present time, some of these wools are blended with nylon with good results. But, as a rule, for the better grades of civilian fabrics, the 64's seem to be generally accepted as the most satisfactory material. As a rule, this wool will reach the mill in the form of "Top" weighing about 250 grains per yard. To assure successs in the operation, the top must be well made; that is, clean, free from stocks, burns, neps and patches of uncomed fiber. If these defects are present, they will certainly plague the production department, because in the average mill there is no equipment available to do a cleaning job.

The synthetic fiber can be purchased as Fiber, "Top" or Tow. If purchased as fiber, the mill will require one of two systems. In system "A" the fiber would be taken from the bale, passed through an opener, then through a blender, which would deliver either to a bin or to a distributor feeding the worsted type cards equipped with a hopper feed. If the mill is not equipped with an automatic blending system, then it will be forced to use the "sandwich mix", and feed the cards manually. The product from the cards must then be further processed; generally a gilling, followed by combing and then another gilling to make the final Top. This Top can be, as already explained, composed of a kind of fiber or a blend.

At the present time, according to the best of our knowledge, there are no cotton type cards which will do a good job on the long fibers which we are discussing. Putting them through a worsted set represents an unnecessary increase in the cost structure. After all, all that is re-

quired from the card is a fiber separation, followed by a mixing and blending, and it seems as though this operation could be very effectively done on a single cylinder type card costing about one fifteenth as much as the multicylinder worsted card.

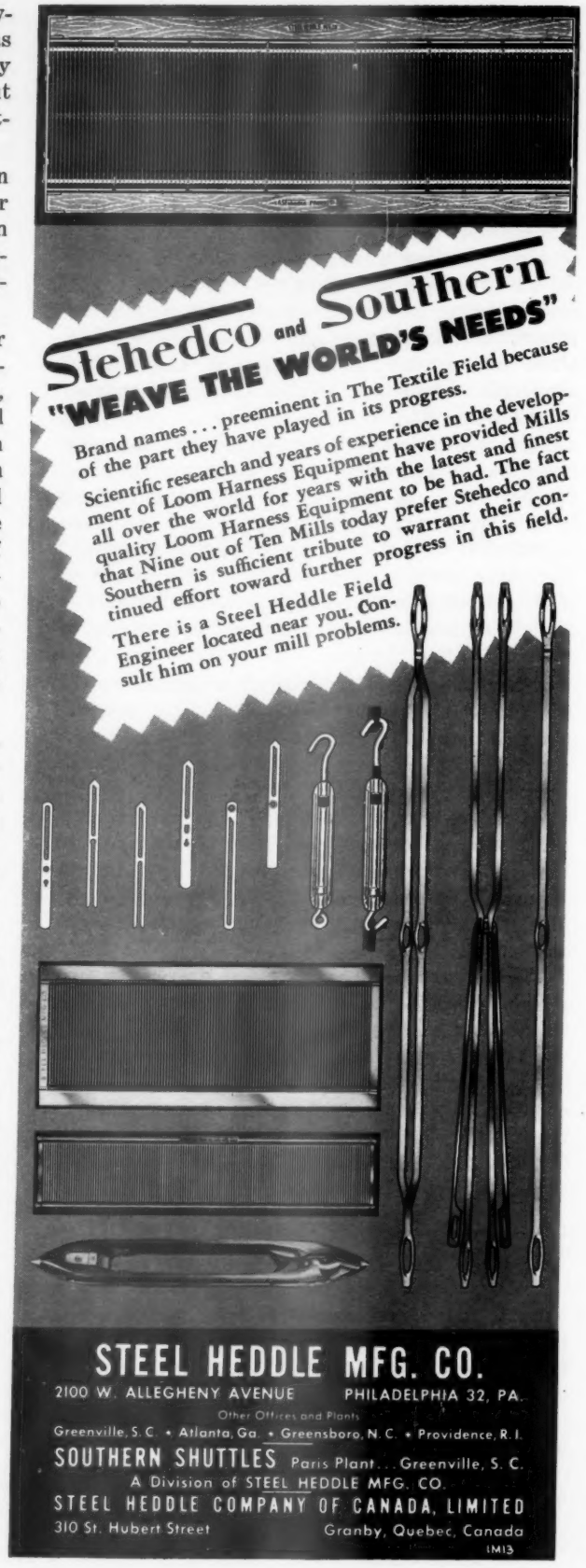
If the mill receives the stock as tow, then there are two alternatives (b) Use a Staple cutter to give the required length of stock and then follow through exactly as if the stock was received in fiber form, or (c) Use the Pacific converter.

While the Top received from the Convertor can be passed on to the roving preparatory processes without other than one or two gillings, experience has shown that the yarn so made will not meet the demands of a trade with very high quality requirements. A very close inspection of the yarn will reveal far too many neps and long thick places which have been traced in some very careful mills to bunches or clumps of fibers so tightly bound that they will not separate in the gill boxes or in drafters, and also there is likelihood of troubles from neps. Therefore, it seems to be the growing conviction that after the Convertor, it is necessary to run the stock through a comb.

From all indications, the most suitable comb for this purpose is the so called "french" or rectilinear comb. It does a far neater job than the circular comb, which is not very well adapted to the short wools or fibers, and as far as we know at this time, the many attempts to adapt the cotton type of comb to the 2.5 to 4.0 "fibers" have been unsuccessful, although the sponsors of this research into machine design are, we have been informed, still continuing quite vociferously.

The "french" comb is a single head machine, producing about 15 pounds per hour. In the past, it has been recognized as the machine required to secure the best quality from high grade fine wools. At this moment, several of the larger and most successful mills in the synthetic field are experimenting with these combs. We know of one mill which is planning to use a Pacific convertor, as the first unit in a very highly specialized production line. This Pacific Convertor producing about 120 lbs. per hour of 200 grain sliver which will be fed 8 ends up into a rectilinear comb also producing 200 grain sliver at about 15 lbs. per hour with 1½% to 2% waste. Following the comb the mill will use 3 Warner Swasey Pin Drafters.

The generally accepted routine at this time for stocks of both pure wool and synthetics, such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as nylon, dacron, vicara, and blends of these with wool involves the use of a gill, with decided preference shown towards either the Holdsworth or Warner Swasey type. There must be at least two or three passages, with the application of an antistatic oil at the start of the first passage. The proper application of this oil is of paramount importance.

The sliver from these gillings is very likely to show "Faller clumps" which are difficult to draft out in the spinning, and these aggregates are seen in the yarn as slubs of undrafted roving. If not taken out in the winding and yarn in sections, they will either break out the knitting needles making holes and press offs, or else will show up as bad places in the cloth, causing excessive mending costs.

One of the best means for avoiding this trouble is to use Saco-Lowell Three-over-Four Drawing Frame after the last gill box. With stock properly prepared, the sliver from the drawing frame should be as clear as a piece of "plate glass" and test about 13% variation on the Saco-Lowell Sliver Tester. This extra process is well worth while, as it improves the running of the work at every stage after drawing. It only involves a low cost high production manipulation which earns more than its cost in better results at the winding. (By James Osborne *Textile Age*, March 1952, pages 18-24).

SPINNING AND WEAVING X-51 ACRYLIC FIBER

We believe that the greatest potential for acrylic fibers is on cotton-type equipment principally because the acrylics permit cotton and spun-rayon mills to produce warmth-type fabrics superior to any they have been able to achieve heretofore.

X-51 staple has been processed on cotton, woolen, and worsted equipment with a minimum of modifications and difficulties. Mills that also handle other synthetics, especially hydrophobic types, have reported that X-51 processes more easily than any other synthetics.

I shall quickly run through the various operations in spinning yarn on cotton-type equipment to point out the more significant things we have found to date. Much that I have to say about X-51 applies also woolen and worsted equipment. In general, the information I will give you applies to three-denier staple. Procedure for our 1.5-denier is only slightly different.

Relative humidity in the plant is not extremely critical, but it should be above 40 to 45 per cent. Fiber should have a brief opportunity to condition, especially if it has been allowed to become quite cold, as often happens in the Winter.

As with all staple, we recommend good blending of bales. We use a lot number and lettering system to assist mills in utilizing bales in such a way as to get the best blending. Mild opening is needed, such as that obtained with a blending feeder. At this stage one will begin to notice the great bulk of X-51 acrylic fiber.

The bulkiness of X-51 may necessitate minor changes on pickers to keep them from choking. Twelve-ounce laps, rather than 14 are recommended, again because of the bulk of X-51. Should laps split, this problem can be solved, as is often done with other staples, by running three or four ends of roving into the lap as it is made.

Flat-top cards have satisfactorily handled three-denier staple in lengths of 1-½, two, and 2-½ inches and 1.5-denier in lengths of 1-½ and two inches. A fancy roll is needed for 1.5-denier and recommended for three-denier. The same fancy roll that is commonly used for nylon staple is satisfactory. If the card is running correctly, it should produce up to nine pounds per hour on 1-.5-denier and at least that much or more on three-denier. Waste should be about two per cent, and very long runs can be made between strippings.

In spinning, no unusual care need be taken, but bear in mind the bulky nature of X-51. This bulk and other special physical properties mean that lower than normal twists should be used. For three-denier stock, yarn strength starts to shoot up at a twist multiple of two and beyond (around 10 t.p.i. for 20s). Maximum strength for it is around 3.3. Spin limit with 1½-inch is 30s and with two or 2½-inch slightly above. Spin limits for 1.5-denier have not been determined fully. Initial work has shown that 60s are easy to produce with 1½-inch staple and 80s have been spun. Tests with two-inch are now being run.

With X-51 you can expect very even yarn. Peaks on the Uster evenness tester have strayed below 50 but nearer 70 is more normal. That compares to 90 to 100 for cotton.

Yarn from X-51 can be twist set, but heat should not exceed 160°F. dry bulb and 150°F. wet bulb nor should time exceed one hour.

Ply yarns, of course, can be woven without slashing. Singles can be sized very successfully in a size solution containing about a pound per gallon of a modified starch. Other ingredients should be about one-third of a pound per gallon of synthetic size and small amounts of gum and softener. Temperatures should be kept low: X-

51 drys very quickly, and over-baking can be just as troublesome with X-51 as with other fibers. It is best to err on the side of underdrying, just so that the warps are not downright wet. Bear in mind that X-51 is virtually as strong wet or dry. It is relatively unaffected by water.

In weaving acrylic yarns, almost everyone has a tendency to overconstruct, to try to put in too many ends and picks. We have some evidence that X-51 appears to have a tendency to full. (We are currently investigating this phenomena.) Both of these additional factors must be considered in designing fabrics from X-51 spun yarn. An overconstructed fabric made from overtwisted yarn works against the natural advantages offered by X-51 spun yarn. An overconstructed fabric made from overtwisted yarn works against the natural advantages offered by X-51 and offered by X-51 spun yarn. Fortunately, quite a few textile technologists have learned how to use acrylic fibers, but even some of these are surprised when they run into the slightly greater bulkiness of X-51.

Weavers aren't the only ones to overconstruct when using X-51 or even other acrylic types. In addition to bulkiness, X-51, as mentioned earlier, seems to full a little. When both these properties are taken into account and the spun yarn is not overtwisted, knit fabrics with an excellently full, warm, pleasant hand are produced.

What I have had to say in the foregoing has to do with X-51 used in 100 per cent form. We have not progressed far enough to report on our work with blends except to say that best results will probably come from blends with hyrrophilic fibers: rayon, wool, cotton, azlon. For some uses, we can see advantages in a three-fiber blend that would include nylon. For the present, at least, we recommend against blends with acetate or with other hydrophobic fibers. (By C. W. Bendigo. *Textile Bulletin,* March 1952, pages 62, 64-5).

POOR QUALITY CLOTH TRACED TO FAULTY DRAWING SLIVER

The management of a cotton mill recently started an investigation to determine the causes for the poor appearance and low break tests of their finished cloth. Tracing back through the processes from weaving, it was found that poor-quality drawing was directly responsible. An inferior drawing product had resulted in bad-running work on the roving frames, increased end breakage in spinning, and high loom stoppage in weaving.

The mill's standard organization, as given, appeared suitable for the 1 1-16-in. cotton being run, with the exception of the roll settings. These settings were too wide; and so for better fiber control, settings were recommended of 1 3-8, 1 ½ and 1 5-8 in. respectively between front and middle and middle and back rolls. It was found that settings should be made between bosses instead of setting with gauges between stands. This method eliminated many of the variations found in the roll settings.

Front-roll speeds were found in many cases to be much higher than standard established speeds. It was reccommended that these speeds be reduced closer to standard for better-quality sliver. The production rate of these frames at standard speeds was sufficient to take care of all roving requirements.

Top and bottom-roll collars on the metallic rolls in some cases were badly worn. Flat spots on collars caused jumpy rolls and uneven sliver. Replacement of all worn rolls was carried out.

Many calender-roll gears were worn and not set in proper mesh. These were replaced and reset correctly. Knife bars and spoons on some stop motions needed attention to give quicker action when an end ran out.

It was found that the distance of trumpets from calendar rolls varied and in most cases was too great. Step gauges for the length of stock being run were used for setting trumpets. On the other hand, clearer cloth was in good condition but needed turning in many cases to present a new nap to the rolls. The use of a stiff brush for cleaning clearers and raising and retaining nap was initiated.

An examination of lubrication methods showed many oil holes plugged with dirt. Oilers were supplied with sharp-pointed wire hooks to clean out oil holes before applying oil. Wear on many bearings was proof enough that oil had not been reaching the bearings. Oilings schedules as planned would have furnished sufficient lubrication if followed faithfully. A closer day-to-day check on oil holes by the superintendent was recommended. (E. H. Helliwell. *Textile World 102,* April 1952, pages 139, 280, 282, 284).

CURRENT DEVELOPMENTS IN TEXTILE INDUSTRY

Despite the protracted slump in textile lines, expansions and new installations continue to be reported by the textile and synthetic fiber industries. The Julius Kayser Co. has announced that it will build a modern full-fashioned hosiery and dyeing plant at Liberty, S. C. at a cost of more than $1 million. This unit, expected to be

completed this summer, will do hosiery finishing and dyeing for all other Kayser branches in the Fifth District. The Liberty plant is the fifth Kayser plant located in the Palmetto State in the past two years.

The Dunlap Corp., a $30 million textile concern, is reported to be moving its operation center and general plant offices to Charlotte from Hazeltown, Pa., where it has been located for the past half century. The company plans to erect a large building in Charlotte which it hopes will be ready for occupancy by 1953. The new headquarters will control the operations of the nine weaving and throwing plants in the United States and act in an advisory capacity to the company's two plants in Canada.

A new denim factory is being constructed in Whiteville, N. C. by the Whiteville Merchants Association, Inc., at a cost of $44,000. Two other additions to the textile industry of North Carolina have been reported—Stone cutter Mills Corp. is entering the field of spun yarns by adding a new department to its mills at Spindale for carding and spinning of synthetic staple. Output is expected to be 20,000-25,000 pounds of spun yarn weekly. Standard Hosiery Mills, Inc., is spending over $50,000 to expand its main full-fashioned plant at Alamance. The addition is nearly ready for installation of new long-section machinery.

Still other information received of textile company expansions are of capital projects not beyond the blue-print stage and about which no details are available as to completion dates, costs, capacity, or labor force. Burlington Mills has a $7 million weaving plant on the drawing board for Sanford, N. C.; Botany Mills plans a big wool and synthetic-wool blends mill near Aberdeen, N. C.; A. A. Carigan intends to build a hosiery mill at Bethel, N. C.; and Deering, Milliken & Co. have scheduled a new mill at Greenville, S. C.

The beginning of construction work on Union Carbide and Carbon Corporation's $30 million synthetic fiber plant at Spray, N. C. has been delayed pending receipt of an NPA Certificate of Necessity. The company does not intend to proceed with construction until this approval is obtained. Operations in the planned plant will produce 20 million pounds of dynel staple fiber annually—one of the newest miracle fibers in the acrylonitrile category. This output will about quadruple the present volume of the company. Part of the $30 million which Union Carbide will spend on dynel operations will go for facilities at Institute, W. Va. and South Charleston, W. Va. to produce vinyl and a cry lonitrile raw materials for the projected plant at Spray. *(Monthly Review* Federal Reserve Bank of Richmond, April 1952, Page 8).

NEW BLENDS POSE PROBLEMS FOR DRY CLEANERS

The continued and increasing number of unfortunate and costly experiences which the members of the New York Neighborhood Cleaners Associations are experiencing in endeavoring to dry clean apparel made of new and untried blends of man-made fibers with natural vegetable or animal fibers convinces this Association that more adequate protection is needed by retail merchants, by the purchasing public and last, but not least, by the dry cleaning and laundering industries of this country.

The most reputable manufacturers of cellulose and chemical fibers, with vast aggregations of capital and with trade names which they promote at a cost of many millions of dollars, are introducing into the market and selling to the public blends of fibers in fabrics which our experience and our tests indicate are almost utterly unserviceable so far as cleaning them is concerned.

There is apparently a growing disregard for facts in the claims which are made for these new fabric blends. This disregard has reached the point where even the experts who are called upon to settle the growing number of claims cannot understand this lack of consideration for garment serviceability.

In the interest of our members, we have left nothing undone to obtain adequate information from processors and distributors which would guide us in properly handle the garments sent us by our customers. We have been unable to obtain this information. Each segment in the chain of production and distribution transfers the blame elsewhere. The fiber manufacturer, the spinner, the weaver, the dyer, the converter, the finisher, the garment manufacturer and the retailer all refuse to assume responsibility. In the end, it is the public and the dry cleaners who are obliged to foot the staggering bill for these garments which should not be permitted to reach consumers until their serviceability has been thoroughly tested and proven.

On behalf of the New York Neighborhood Cleaners Associations let me cite a number of the problems which face and which appear to us to be insoluble unless we obtain the protection of either the Federal Trade Commission or of a law by Congress which will require clear and explicit statements from the manufacturer or the distributor regarding the basic qualities of wear,

service and cleanability of the fabrics in garments.

(1) It is becoming a more and more common practice to imitate fabrics of proven serviceability by substituting cheaper fibers or blends of fibers, cheaper dyeing processes and chemical finishes. The result is that dry cleaners, judging the fabric by its external appearance find that it will not withstand ordinary cleaning techniques which were used successfully on the original fabrics.

(2) Ignorance or disregard on the part of manufacturers is resulting in the production of new fabrics which cannot be cleaned by any existing process. The unserviceability may be due to innovations of fibers or yarns; in the weaving; in the dyeing, or in the finishing. The public should be told of the service limitations of these fabrics. The dry cleaners should be told if they can be cleaned and by what process.

(3) New synthetic fibers are being marketed prematurely without having behind them any history of proven service. These new fibers are used in fabrics alone or in blends with animal or vegetable fibers. Some of these blended fabrics have characteristics which may be of great service to the public, but many of them simply cannot be dry cleaned.

(4) In the cellulose fiber field, rayon is being widely used alone or in blends to make fabrics which were formerly made successfully from acetate, silk or nylon. In using rayon, many of these fabrics after being woven are stretched and finished with a water soluble sizing. Mere drops of moisture—raindrops or a spilled drink—dissolve the sizing. The dry cleaner must use moisture on any garment in order to dissolve any water soluble stains such as sugar, liquor stains, etc. Perspiration odors can only be removed by water. There is no known method by which the dry cleaner can possibly clean these garments satisfactorily.

As dry cleaners whose business depends upon volume and the expansion which always accompanies the development of new fabrics and new fashions in apparel, we applaud the development of new fibers. The situation, however, which is resulting from their intensive promotion and sale to the detriment of the public, and certainly to the detriment of our industry, must be regulated.

One large producer of chemical fibers recently announced that 70 million dollars had been expended in research in order to perfect this new fiber. I understand that 500 garments were made in fabrics of this new fiber and were sold to the public. The public was not advised that this production was really a laboratory or experimental test. The garments were not properly labled with any special instructions as to how they were to be dry cleaned. It is our opinion that this phase of protection to the public is as essential as was the development of the fiber itself.

Manufacturers of the new synthetic fibers admit that dyes have not yet been found which can properly impregnate their product. Yet fabricks made of these fibers or blends of these fibers and natural fibers are being sold to the public apparently without any effort whatever to determine whether water, dry cleaning fluid or weak spotting chemicals will remove or spoil the dye.

Producers of synthetic fibers admit that their product generates static electricity. This is an almost common liability of many of these new chemical fibers. Fibers that do generate static electricity act as magnets which attract the loosened soil from other garments in a dry cleaning machine. In many instances this dinginess and layer of soil cannot be removed.

Just recently one of these new chemical fibers was blended with wool and sold in apparel. The fabric was found to be abnormally sensitive to the weak chemicals which are absolutely necessary to romove common stains. The fabric looked like wool and there was no label or other means of identification which informed the dry cleaner that it was not wool. Upon processing, yellow spots appeared on the fabric wherever the weak chemical was used. Tests made on the unexposed seams of the garment showed that even further weakening of the chemical would not remove the stains. It resulted instead in further yellow discoloration.

I have taken the liberty of citing only a few instances of the increasing and serious difficulties which our industry faces as results of the manipulation of new and untried fibers in apparel fabrics. The losses to which we are being subject threaten many with ruin. It is impossible for dry cleaners to submit every garment to a laboratory for fiber content analysis before cleaning it. Even though the industry had this fiber knowledge, new processes must be developed before many of the new blends of synthetic fibers with wool or with cotton can be dry cleaned or laundered.

The New York Neighborhood Cleaners Associations urgently requests that the Federal Trade Commission make a thorough investigation of present conditions in the interest of the consuming public and that a Trade Practice Conference

be called at the earliest possible date to establish fair trade practice rules which will require the following:

(a) That a label containing the percentage of wool, rayon, acetate, acrylic or polymer fiber content be sewn onto the garment.

(b) That the presence of sizing or a chemical finish such as the finishes which are applied in an effort to improve fabric appearance or to reduce tendencies of synthetic fibers to wrinkle be stated on a sewn label.

(c) That the percentages of new chemical fibers present be stated in a label attached to the garment.

(d) That wherever fabrics in the garment containing these new fibers require special processes in dry cleaning or laundering, directions be affixed to the label.

(News Release. New York Neighborhood Cleaners Assoc. April 17, 1952).

UNIQUE SYSTEM FOR RECORDING MAINTENANCE DATA

The value of an accurate and easy-to-read method of recording maintenance data is emphasized by the complexity of machinery maintenance and the current high cost of the work involved.

A simple system was derived to keep a lasting record and also to indicate at a glance whether all routine maintenance tasks were being carried out on schedule in the mill.

Here are the details: A hollow metal cylinder of some 42" length and 14" diameter was constructed of No. 28 gauge sheet. The ends were covered with metal flanges of the same material, and through the center of the cylinder was passed a ¼" mild steel rod which protruded 2" beyond the center of each flange. The protrusions rested in two U-shaped metal supports so that the "drum" could be easily rotated by hand.

Three long sheets of squared paper were then prepared for mounting on the drum. Each had vertical lines ruled ⅜" apart down the whole length of the sheet. At the top of the resulting columns was inserted the date of each Saturday for the next six months (the months being typed above the dates) so that we had a column for the work completed each week.

In the left-hand column, running downward, were typed the successive numbers of all the machines in one process. Finally, our three sheets were headed with the names of the processes covered, had the legends of their color marks entered upon them and were fastened with Scotch tape directly on the drum. In six months' use, no trouble was found with wrinkling of the paper or the paper becoming detached.

The left-hand sheet on the drum covered carding; the center, warp spinning and roving; and the right-hand sheet, all remaining processes.

The operation is simple and is briefly as follows:

1. At the end of each shift the head scourer, traveler changer, etc., brings a report on the work completed to the control laboratory where the drum is maintained up-to-date on a daily basis.

2. A small check mark is entered upon the appropriate drum sheet. This mark is colored (indicating the type of job completed) and beside it is the date. For example: 14.

Thus, to check when any given frame was last scoured, the drum is rotated until the frame number appears. The observer looks to the right of the frame number and on noting the last entry in the scouring color, he also sees the date when the job was done. At the head of the column he finds the week and month.

3. At the end of each week, we examine the column on the carding sheet, add up the number of cards ground, and write in the total at the bottom of the sheet. The procedure insures that card maintenance cannot lag behind schedule without being observed. (By Douglas G. Hart. *Textile Industries*, April 1952, pages 118-120).